Linking Questions and Data in Longitudinal Research:
Re-thinking Mixed Longitudinal Methods

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Introduction: Mixing Methods in Social Research

There is a growing interest among researchers in the idea that our understanding of the social world can be enhanced through the integration of Qualitative (QL) and Quantitative (QN) methods of enquiry. Indeed, what is now commonly called 'mixed methods research' has been described as a 'growth industry' (Bryman 2008: 603). These developments could herald the end of the 'paradigm wars' that dominated scholarship during the 1970s and 1980s. Yet despite these advances, there remains little consensus over how a mixed methods approach is best conceptualised and practiced. What does it mean in terms of our **methodological orientation** (our preferred ways of knowing and understanding the world), and the **practical methods or techniques** that we employ? Should mixed methods research become the 'gold standard' of research practice – an emerging orthodoxy in its own right? Or should it take its place alongside unitary modes of enquiry that are equally viable? Linked to this, should we retain the terminology of QL and QN methods, thereby reinforcing the distinctions between them, or is there a case for abandoning this terminology?

This paper presents a brief overview of mixed methods research, exploring the drivers towards methodological separation or integration, and the spectrum of research designs that integrate or link QL/QN approaches. Examples are then given of the varied ways in which QL/QN approaches are being linked in longitudinal research. Finally two broad areas for development are suggested: a reframing of mixed methods research and a review of the UK infrastructure within which longitudinal research is supported and practiced.

The Drift towards Methodological Separation.

It is commonly understood that QL and QN approaches follow different logics of enquiry and provide insights into different dimensions of social reality. Put simply, **QN Research** is founded within the orthodox, natural science tradition of positivism: hypotheses are deduced from theories, which are then tested through methods that produce factual, objective or observable data. The emphasis is on the production of macro-level data and findings that are reliable, replicable and from which generalisations can be made. The application of this approach to the social world has its limitations, not least the danger of producing superficial insights about people and the social shaping of their lives. However, the strength of QN research lies in its statistical power: it lends itself well to addressing measurable questions about the prevalence, frequency or durability of social practices (e.g. 'what' 'how long', 'when' and 'where'). Through techniques such as large scale surveys, structured questionnaires, panel and cohort studies, QN research creates numerical trend data, gathered across representative samples of a given population. Such data can enhance our understanding of the broad structures of social life, the place of individuals within these structures and patterns of social change and continuity.

QL Research, in contrast, is founded within the equally venerable interpretivist tradition of research, which is concerned with finely grained, subjective meanings of social practices and values. These insights are then used abductively to build and refine theories about the social world. The strength of QL research lies in its enhanced explanatory power (Ruspini 2002; Mason 2006). It can capture the immediacy and complexity of real lives, uncovering the differences and similarities between individuals, and how they interpret the world and make sense of their place within it. Working with small purposive samples of the population (i.e. those sampled on the basis of a range of experiences or circumstances), techniques for generating data are fluid and open, and can generate detailed, contextualised, narrative and/or multi-media data. The core method is qualitative interviewing, in which 'how' and 'why' questions are used to jointly construct meaning and knowledge. The richness and quality of QL data can generate detailed explanations about people's lives, providing insights into human agency and identity, temporal life course processes, and subjective understandings of causality. Perceived as a cottage industry, the product of

individual scholarship, QL research can be regarded as unrepresentative and therefore merely anecdotal. However, its reputation is improving as the logic and robustness of its techniques and the quality of its insights have become more widely appreciated.

As will be shown below, the boundaries between these two research orientations may be more fluid than these descriptions imply. Nevertheless, these stereotypes exist and inform much of our research practice (Brannen 2004: 313). Perhaps the overriding distinction between them is more a matter of orientation and style than of substance.

Separatist Research Infrastructure

As indicated above, differing orientations to research produce different kinds of data that require different techniques for their collection, management, analysis and interpretation. The data themselves differ, as do the skills needed to work with them. For example, the expanding portfolio of UK national longitudinal datasets is largely quantitative, and specialist statistical skills are needed to analyse and further develop use of these datasets. Equally, the intertwined process of generating and analysing qualitative data is a specialist skill. The current skills base for research practice is therefore divided (Brannen 2005), while methods training serves to re-enforce these differences by devoting separate weeks of training to each method (Gorard 2008). Specialist computer packages have been developed for the analysis of QL or QN data, which tend to be held in separate collections. Opportunities for publishing are often geared to one rather than both traditions, so that even where methods associated with one tradition are pressed into the service of the other, these may not be reported (Brannen 2005; Dale 2006). Finally academic posts are usually geared to one tradition rather than both; the development of specialist skills is an important requirement for career development (Buck and Laurie 2008). In this climate, researchers tend to remain immersed in their own tradition. Stereotypical prejudices about the limitations of each method continue to be voiced in everyday discourse, suggesting a muted continuation of the paradigm wars. Overall, there seem to be practical as well as epistemological reasons for acknowledging the differences between the two research traditions, for they currently remain embedded in the UK infrastructure for methods training, research practice and experience, career development and the provision of data resources.

The Drive towards Methodological Integration

The view that QL and QN research are rooted in different traditions, pose different kinds of questions and produce different kinds of data and explanations continues to hold sway; it reflects the reality of much contemporary research practice. However, with the growth in mixed methods, the boundaries between the two traditions are becoming more fluid, and researchers are increasingly wary of over-exaggerating the distinctions. It is evident, for example, that qualitatively-led research can test hypotheses about the social world, and produce numerical data and generalisable findings. Similarly, quantitatively-led research can uncover complexities and subjective understandings (e.g. by building in QL 'add-ons'). As Bryman (2008) notes, while research techniques may be connected with different epistemologies, there is nothing fixed or inevitable about this. Moreover, depending on how they are linked, the techniques can be complementary rather than incompatible. They interrogate different dimensions of social life and, in combination, have the potential to produce more rounded understandings of social patterns and processes (Bryman 2008).

Bryman's recent survey reveals a wide range of rationales for mixing methods. The most common are that they give a more comprehensive account of the world (e.g. by combining macro and micro data); enable cross checking and corroboration of findings (triangulation); and enhance the quality and explanatory power of data (e.g. by exploring a particular puzzle or anomaly in a QN dataset through the addition of a QL component). In these ways mixed methods can increase the integrity, validity and utility of social explanations and research findings. Interestingly, in a large proportion of the cases surveyed, researchers had no particular rationale in mind but took a pragmatic approach and were willing to experiment with a combination of techniques (See Bryman 2008 for a full account). Through a growing body of literature we are beginning to see the wide ranging possibilities for creative connections and overlaps between the two traditions. The potential exists, for example, to ask **what, where, when, how and why** questions in a single study; to infuse QN data with meaning and context; to produce narratives out of QN analysis; and to scale up QL research to increase its powers of generalisation.

A Spectrum of Research Designs

Taking an overview of current developments in mixing methods, it is possible to identify a spectrum of designs. These can be clustered into three broad categories: At one end of the continuum are **Integrated designs** that give equal weight to the two traditions. Moving towards the centre, these shade into **Linked designs** that are either qualitatively or quantitatively-led. These, in turn, shade into **Unitary designs** at the other end of the spectrum (for an alternative spectrum, that places integrated designs at the centre, see Teddlie *et al* 2008).

Integrated Designs, in which full weight is given to QL and QN approaches, is an emerging category of research practice. In Bryman's view, this ideally involves working fluidly within a single project, weaving different techniques and insights together throughout the research process, from initial conception through to dissemination (Bryman 2008). This may include generating mixed research and fieldwork questions, combining techniques for data collection and analysis, sifting complementary datasets and merging interpretations and findings. These complex designs enable a blending not only of numerical and narrative data, but of sensory, visual, aural, observational and experiential data that may enhance our capacity to pose and address questions about the social world.

Linked designs, in contrast, have a well established history and are the most common form of 'mixing'. Working primarily within one research tradition, researchers selectively import data collection techniques, sub-samples, data or interpretations from the other tradition to enhance the quality of data and enrich findings. For example, a small or mid-range survey may be used to facilitate sampling in a qualitative study. It is also common in large survey work for a qualitative pilot to precede the main study, and for qualitative data to be used to illustrate the main findings. There are infinite possibilities for linkages, ranging from integration of one or two components, through to tandem designs where different components are used in parallel. A tandem design is the one most usually adopted. Most 'mixed' research, for example, presents parallel results rather than attempting to integrate them (Dale 2005; see also Fielding and Fielding 1986, Bryman 2008; and Brannen 2005 for an

overview of a range of linkages). Linked designs are by no means limited to single studies but commonly involve links between two or more studies (as illustrated below). This design strategy, then, is highly flexible, a crucial consideration given that, 'data collected from different methods cannot be simply added together to produce a unitary or rounded reality' (Brannen 2005; 176). Underpinning this strategy is the view that there are limitations in combining insights from different techniques (e.g. focus groups, structured questionnaires, visual reportage) since the kinds of data they produce and the meanings attached to them are different and do not easily map onto each other. From this point of view, QL and QN approaches can be treated as broadly complementary though not necessarily as compatible (Brannen 2004: 313)

Finally, **Unitary designs,** based on one tradition alone, remain a visible and vital part of the continuum. This is not to say that such research stands completely alone or has no wider impact. Each study is connected to the research canon, generating new insights and research questions that are disseminated and combined with findings from other QL and QN research, for example through literature reviews and other forms of dissemination. Such studies have a cumulative impact, feeding in new knowledge that may influence the shape of future research across the two traditions. The 'mixing', then, occurs as a temporal process, operating through time rather than contemporaneously.

The Status of Mixed Methods Research

'Multi-method research is not necessarily better research' (Brannen 05: 183)

The growth in mixed methods research has given rise to new debates. These focus on the extent to which mixed methods research should be seen as the new 'gold standard' for research practice – an emerging orthodoxy in its own right – or whether it should take its place alongside linked or unitary modes of enquiry that are equally viable. The spectrum produced by Teddlie and colleagues places integrated methods at the centre, thereby giving it a prominent place in the canon and seemingly marginalising alternative research strategies. Linked to these developments a further question then arises about the merits of retaining what might be seen as artificial distinctions between QL and QN research. In the pursuit of integration some researchers suggest

abandoning the terminology of QL and QN methods altogether (e.g. Layder 1993; Halfpenny 2005, Gorard 2008).

In the US a 'MM (mixed methods) movement' appears to be developing, that Teddlie and colleagues (2008) identify as one of three 'methods' groups. The other two groups (QL and QN researchers) are described as 'purists' who are resisting the rise of the MM movement. In the view of Teddlie and Tashakorri (2008: 15), 'Mixed methods research can answer research questions that the other methodologies cannot.' However, framing the debate in this way could turn into a new version of the paradigm wars and fuel further divisions between 'integrationists' and 'purists'. To describe mixed methods as an emerging field of research in its own right, as if it can somehow be distinguished from the two traditions upon which it is founded, and within which it is constituted, may be counterproductive as well as confusing. This is discussed further below. Whatever the intricacies of these debates, it would seem that integrating methods within a single study is only one of a number of viable research strategies, and should not be seen as superior to or in competition with unitary designs (Bryman 2008). Before these debates become too entrenched, it would be worth fostering more productive dialogues between empirical researchers, particularly between those working across the boundaries of different traditions. This would help to open up possibilities for a wealth of linked designs, while at the same time acknowledging the viability of QL and QN research as unitary modes of enquiry.

Mixing Questions and Data in Longitudinal Research

> 'The temporal dimension of social life… has taken on new significance with the recognition of rapid social change under late modernity. It is *through time* that we can begin to grasp the nature of social change, the mechanisms and strategies used by individuals to generate and manage change in their personal lives, and the ways in which structural change impacts on the lives of individuals. Indeed, it is only through time that we can gain a better appreciation of how the personal and social, agency and structure, the micro and macro are interconnected and how they come to be transformed (Neale 2004).

This section of this paper sets out some examples of the different ways in which research components may be combined in Longitudinal research. In the UK, both **Qualitative Longitudinal** (QL) and **Quantitative Longitudinal** (QNL) studies are established and under further development. The current portfolio of national level

studies is predominantly QN in orientation, although this is beginning to change. QL research has a long and venerable history, particularly among social anthropologists and oral historians (Holland *et al* 2006). Such studies are generally small scale, scattered, and the product of individual scholarship, although the opportunity for scaling up such work through the cross analysis of thematically related datasets is beginning to develop.

QL research has been defined simply as Qualitative enquiry that is conducted through or in relation to time (Neale 2006). QNL research could be defined in much the same way. In both traditions there is a broad concern with the dynamic aspects of social life. Longitudinal research charts and explores patterns and processes of social change and continuity and seeks causal mechanisms for understanding social change. As Berthoud (2000) says, the aim is to capture a movie rather than simply a snapshot of social life. The main techniques employed are repeat cross-sectional studies that capture broad social trends, panel or cohort studies that track the same individuals prospectively through two or more points in time; and retrospective studies, which generate life history data through one or more interviews. Longitudinal data in both traditions is extensive and complex. The analysis of these data is multi-dimensional, involving both temporal and cross sectional analyses. It is, therefore, time-consuming and requires specialist skills (ranging from regression analysis and multi-level modelling to the production of case histories).

The epistemological and practical distinctions that are currently evident in QL and QN research flow into longitudinal research design to create distinctive modes of enquiry. Different orientations towards time emerge that, in turn, impact on the kinds of dynamic data that are captured and the nature of the explanations that these data produce. To return to Berthoud's analogy, the movie produced in QNL research is a grand epic, a broad vista of social structural change, constructed from socio-demographic, economic, medical, educational, generational or other broad profiles of the study population. Time is conceived in a linear way as duration, sequence, and interval. The QL movie is a more intimate portrayal of individuals and the textured dynamics of their lives, which attempts to construct history through the lens of personal and collective biography. Time here is conceived as a complex construct that has biographical, generational, historical and cyclical dimensions. These different

approaches, however, are broadly complementary: finding ways to link historical, biographical and social structural data and insights from those data has the potential to enrich our understanding of social change.

Examples of Longitudinal Studies

The examples set out below include three single studies (the first two of which are reported in Brannen 2005). These are followed by 3 large scale studies (NCDS, UKHLS and Timescapes) that are developing productive links. Two of the latter are QN designs and the third is a QL design. The most common design identified in longitudinal research is one of linking different research components together to create a tailored method. A fully integrated approach does not seem to be developing, particularly in large scale studies. It may, in any case, not be feasible, given the scale and complexity of longitudinal data and the highly specialist modes of analysis needed. At the same time, the practice of working temporally enables flexibility in research design, the ability to refine questions and the kind of data needed to answer these questions as a study progresses. Thus each new wave of fieldwork builds on and complements earlier waves and opens up fresh opportunities for linking questions and data in creative ways. The temporal dimension also allows for changing the skills mix within a team and for team collaborations to develop organically.

1. Students developing Mathematical knowledge (Hoyles *et al* 2005)

QNL design with a QL data collection component.

The main aim of this Quantitatively-led study was to discern the development of children's mathematical reasoning and attainments by tracking their progress through their school years. The researchers sampled children attending randomly selected schools within diverse regions of the country using structured questionnaires that were later repeated. They then selected sub-samples of children, those whose ability to reason mathematically had increased or decreased, for qualitative interviews. Data from the qualitative case studies (which revealed four types of reasoning) were then transformed into quantitative data (mathematical symbols) in order to bring the two sets of data into a common frame for analysis. In this case the QL data were analysed quantitatively and proved useful in enhancing QN explanations and findings.

2. The effects of pre-school provision (Sammons *et al* 2005)

QNL design with QN data collection component derived from main sample.

 In a similar example, this quantitatively-led study was designed to document the effects of pre-school on young children, by tracking a large, representative sample to the point of entry into school and documenting their attainment and development. A small number of early education centres, with contrasting profiles, were then followed up for detailed study. The QL data were then 'reduced' and used to provide statistical explanations for the QN data i.e. they were transformed into QN variables and correlated with the variables used in the main study. The justifications given for linking these different data was that they offered complementary strengths and would move the research away from a reliance on only one paradigm. In practice, however, the QN design dominated the study, so much so that the qualitative interviewers went into the field 'blind' – without knowledge of the results of the main survey, in order to reduce interviewer bias. In this case an interview technique commonly thought to be qualitative is used in a quantitative style, and without generating the depth of data that would be the hallmark of QL research. Moulding the 'add-on' technique and resulting data to fit the QN orientation of the study is understandable, particularly where such data prove to be incompatible and do not fit the logic of the overall study (Brannen 2005b). Similar strategies are evident in other studies, for example Blatchford (2005), where case study data are collected and then 'reduced' to explore objective causal links (in this case, the statistical link between class size and educational achievement).

3. Shared Beginnings, Divergent Lives. (Laub and Sampson 2003)

QN study, textual and statistical datasets. QL follow up, integrating QL and QN data for analysis and write up.

This is a longitudinal study of a cohort of 500 'delinquent' boys from Boston, who were followed up on several occasions by two different research teams to chart how their lives had unfolded. The first study, conducted by Sheldon and Glueck, covered the years 1940 to 1965 and involved 3 waves of structured interviews and the collection of public records (e.g. on school attainment) and statistical data. These were conducted when the men were aged 14, 25 and 32 and resulted in 2 predominantly QN datasets on the men. In 1995, Laub and Sampson conducted a secondary analysis based on the combined datasets. They constructed detailed event

histories from the structured and factual data, and used a variable frame and statistical techniques to analyse the data. One of their key findings was that marital and employment status influences criminal behaviour over time. With the structured interviews they used a person frame and used narrative analysis to construct life histories for a subset of 70 of the men (see NCDS below for discussion of narratives). They used the QN data as a sampling frame and, from this, constructed a theoretical sample built around high and low employment, marital status and criminal activity. This enabled them to assess the QN findings. They discovered that there were other salient factors that mediated the findings from the QN analysis. These were that alcoholism or poor marital relations could counteract the men's employment and marital status, and that military service was a stabilising factor. In this study, Laub and Sampson linked data from two QN data sets and used a QL analytical strategy (narrative construction) to create a more rounded understanding of causal factors in the lives of the men.

However the researchers were criticised for failing to reveal the inner logic of the men's lives. They subsequently set up a further study to conduct life history interviews with the surviving men. Their aim was to, 'unite QL and QN data to illuminate the processes of human development and continuity and change in criminal behaviour over the life course' (Laub and Sampson 2003). They used criminal and death records to discern what had happened to the men and to update the original dataset. They then tracked down and interviewed 52 of the surviving men, who by then had reached the age of 70. They created a new theoretical sampling frame based on the new data available to them and sampled for criminal 'persisters', 'desisters', 'intermittents' and 'zig-zags'. They used a life history calendar to collect QN event data (number, timing, sequence, and duration of marriages, divorces, employment, residence and so on) and complemented these data with QL retrospective life history interviews. They defined their analytical strategy as a 'systematic weaving back and forth between the numerical and life history data, in order to enrich the overall analysis'. The life histories revealed the important turning points in the men's lives, that explained how they turned from, or returned to, a life of crime (e.g. marriages, military service and so on). They were then able to further interrogate these themes in the quantitative data. They used both life history and numerical data to present their findings and give a more detailed understanding of the men's lives. The narratives

revealed marked variations in the life trajectories of the men, and multiple pathways to the same outcome. A key insight was that it was not possible to predict outcomes for the men, but that causality could be constructed retrospectively, through life history methods. They found that, 'the integration of QL and QN data is notoriously difficult in practice and there are few guides to successful examples' (Laub and Sampson 2003: 1). Their study is a good example of how QL data can provide detailed explanation of a QN analysis, allowing a QN study to engage more effectively with the complex dynamics of real lives.

An example of a Qualitatively-led Longitudinal study (Young Lives) that seeks to link QL with QNL data is give below (see Timescapes).

4. UK Household Longitudinal Study (Buck and Laurie 2008)

This is a major new QN panel study of over 40 thousand households in the UK, collecting annual data on a wide range of variables, including bio-markers**.** Strategies for linking QL components to the main study are currently under development. These include links to the Timescapes study, which shares similar substantive themes and topics and will involve consultation between the studies to identify and advance appropriate, ethically sound strategies for qualitative add-ons to the main study. Possible strategies include:

- Qualitative components to the main survey to capture more detailed event data, values and motivations, and social contextual data on change. Possibility of releasing free text (verbatim data) collected as part of the structured interviews, for qualitative analysis.
- Links to Timescapes dataset, and encouragement of researchers to use both datasets, providing QL contextualisation of UKHLS data, and/or QN contextualisation of Timescapes data. This would be helped through collaboration on documentation standards and conventions (i.e. metadata on coverage, content and combinations of data), arranged via ESDS. UKDA and Timescapes have recently devised new standards for the management and use of Timescapes and other qualitative data, that could be extended to UKHLS.

- Issues identified in the Timescapes interviews can be explored quantitatively through UKHLS, with emerging insights informing the design of relevant questions on subsequent waves of UKHLS.

- Importation of selected data collection techniques used in Timescapes (e.g. photo elicitation, social network diaries), for use with small sub-samples. Collaboration between the two studies to design appropriate add-ons, which might also include in-depth interviews, focus groups, Mass Observation style accounts, weblogs, and replication of Timescapes visual methods (e.g. timelines, visual ethnographies, official portraits). These are more likely to be used with the innovation panel because of ethical issues of confidentiality, and the need to minimise overload/possible sample attrition, which would then increase bias in the main sample.

- Affiliated, separately funded QL projects. Recently, in the BHPS, small sub samples have been selected and recruited into a focused qualitative enquiry (Sutherland *et al, Within household Inequalities and Public Policy* funded under ESRC G-net). The strategy of encouraging affiliated projects is used in Timescapes, although with a linking of data and researchers rather than research participants. The feasibility of a Timescapes project becoming affiliated to UKHS may be worth exploring.

- Longer term and dependent on funding, the development of joint training courses and workshops on linking QL and QN components in longitudinal research.

5. NCDS: 1958 birth cohort (Elliott 2005; 2008)

QN cohort study, qualitative add-ons, integrated analysis of QL data, QL analysis and narrative presentation of QN data

This is a major QN birth cohort study that, since 1958, has been tracking a sample of 17,000 babies through their childhoods and into adulthood. There have been eight subsequent waves of interviews (conducted at age 7,11, 16, 23, 33, 42, 46 and 50), over which time the sample has reduced to 12,000 individuals. Core funding now allows for follow-up every four years. Themes are varied, ranging from family life and health to education and citizenship. The data are structured and numeric, but have been collected in questionnaires that also have open segments with textual responses.

Textual data was also collected in a qualitative add-on in 1969. At age 11, over 13,000 cohort member produced written essays that imagine their future lives at the age of 25. These essays were not analysed at the time of collection. A sub-sample of 560 essays is currently being digitised and analysed both qualitatively and quantitatively (SPSS and NVivo). Measures include home background, nature of schooling, and a thematic analysis of interests and aspirations. The qualitative analysis allows insights into the subjective construction and narration of gender, and how this intersects with social class and ethnicity. This is a good example of a creative linking of QL and QN modes of analysis within a single project (Dale 2005).

In this study QN cohort data is being analysed through a narrative approach that transcends the distinctions between QL and QN data and could hint at an interpretive turn in QN longitudinal methods (Beyers 2006). For example, the analysis includes the construction of life history narratives from the cohort data, which allows QN longitudinal data to be moulded into a meaningful story – one that is told in sequence, with a clear and developing story line (Elliott 2005; Beyers 2006). In other words, QN data is being transformed into QL data in order to increase its explanatory power. In a climate, for example, where there is increasing evidence that statistical associations are not sufficient to establish causality, QL data that uncovers subjective notions of causality and can trace causality retrospectively through the construction of a life history, can be particularly powerful. Linking analytical strategies in this way is important, for it enables QN research to connect to accounts of how people understand their own lives (Elliott 2005).

The next wave of the NCDS will include, for the first time, a qualitative component of the main survey (in depth life history interviews with a theoretically constructed sub-sample), and a further qualitative interview will be carried out with 180 members of this sub-sample. In this way, the QL add-on provides an auto/biographical source of data, including data on taking part in the study, which can be used alongside the QN data. The add-on requires careful thought about overburdening cohort members and preserving confidentiality.

NCDS Links with Timescapes

Productive links have been established across the two studies. They include:

- Active collaboration and consultation (through reciprocal membership of advisory boards). Core fieldwork questions used across the Timescapes study to construct biographical, generational and historical data may be used or adapted for the NCDS add-on.

- Timescapes replication of essay question with up to 100 young people in the Timescapes study. This will be supplemented with interview data exploring why the young people held particular aspirations, where their ideas came from, and how they envisage 'getting there'. The data will also be linked to time line data that projects into the future. In one project (Young Lives and Times) the young people will be tracked through to age 23 and this data will be compared with the actuality of their lives as they reach their mid 20s. The Timescapes data will be analysed in relation to the NCDS historical data and this may open up possibilities for joint dissemination. This initiative, then, involves inter-study collaboration to link QL data gathered through time, with greater breadth in the NCDS data and greater depth in the Timescapes data.

6. The Timescapes Study and Archive (Neale 2007)
QL study with selected links to QNL data sets (e.g. NCDS, UKHLS, BHPS, LSYPE); organisational collaboration, question sharing and replication, data linkages (primary and secondary)

Timescapes is a national level QL study, recently funded by ESRC. It prospectively tracks people from across the generations to explore the dynamics of their family lives, personal relationships and identities. The sample consists of over 400 individuals from all 'walks of life', and will be boosted with the inclusion of Timescapes heritage data upon which the current empirical work builds. Rich multi-media data (text, sound, image, moving image, graphics) are being gathered in 7 empirical projects that span the life course. These include data from focus groups, in depth interviews, participant observation, weblogs, written accounts, diaries, video diaries/boxes/walkabouts, drawings, collage, time lines and relational maps. Written accounts will also be collected from the general population through a partnership with BBC Memoryshare. Recently, as part of ESRC Social Science week, a national post card initiative was launched that produced over 700 accounts on siblinghood from across the generations. Data gathered through these different techniques are being gathered together to form the Timescapes archive. This is a devolved digital resource,

linked to the live study and built on the principle of data sharing both within and beyond the Timescapes team.

Potential Affiliated projects are invited to deposit data in the archive and carry out secondary analysis of existing data. Where possible they are encouraged to link Timescapes data to larger data sets. A current proposal, for example, seeks to explore the health and well being of older people through an extended analysis of data in both Timescapes and ELSA. In order to be able to link Timescapes data to national level QN data sets, a detailed base data questionnaire, drawn up in relation to data in BHPS and selected other datasets, is being administered across the Timescapes projects. Similarly, four key fieldwork questions that capture data about the past, present and future are being asked across the seven projects and may be rolled out to the NCDS QL add-on. A dedicated secondary analysis project (Irwin, Leeds), conducted during 2009-10, will mesh analysis of micro data in Timescapes with macro data held in a range of national level datasets, linking biographical data with historical trend data to shed light on social structural continuities and changes.

Young Lives and Times: a QL project. In terms of linking micro and macro questions and data, Timescapes builds on an ESRC fellowship (Neale 2004), which was designed to develop QL research, explore the boundaries and connections between QL and QNL studies and develop collaborative links with QNL researchers. Under the fellowship the **Young Lives and Times** project was established to track an age cohort of young people through their teenage years and into their early 20s. Ethnographic methods are being used to explore the dynamics of their personal lives across the domains of family, peer group and schooling. The project was scaled up under the NCRM Real Life Methods node, and will transfer to Timescapes from October 2008. The development of the project involved setting up a project team, including a skilled QN researcher (Irwin) to carry out a micro survey that was conducted through schools in the same locality as the ethnographic work. The survey was designed to provide insights into processes as well as patterns of teenage life, and combined QL and QN logic to develop questions that would yield such data. The survey questionnaire was also completed by the cohort members as a way of linking the survey and ethnographic components of the study. Productive links with 'futures' data in the NCDS have also been established (see NCDS, above).

Integrating data across two studies? A case study.

When the **Young Lives** project was first set up, collaborations were planned with two parallel studies, the youth sample in BHPS and Next Steps (Longitudinal study of Young People in England, then DFES). The strategy that was devised for the collaboration[i] with Next Steps is an iterative model of sharing data and insights designed to operate over time (Neale 2004; 2005). In this model, particular themes, puzzles or anomalies that emerge in the early waves of the QN study are fed into the parallel QL study for detailed exploration. Fresh insights emerging in the QL study are then fed back into the QN study. In this way insights are enriched and research and fieldwork questions are refined as the parallel studies progress in tandem. This model was represented as two horizontal lines, in parallel, with a zig-zag line running between them and linking them through time (Neale 2005).

The proposed collaboration with the Next Steps survey was of key importance in the design of the Young Lives project. The survey is tracking up to 20,000 young people through their secondary schooling and into young adulthood, with the focus on their educational development. Data is also being collected about their families and peer group. The age of the micro sample and longitudinal reach of the project were closely matched to the Next Steps survey in order to increase comparability. Key themes in the Next Steps documentation and draft questionnaire were helpful in formulating ideas for the micro project. A meeting was held with a key researcher working on the survey, who was drafted onto the Young Lives project advisory group. However the strategy for building productive links between the two studies was not effective. The small scale of the ethnographic project, working with at most 40 young people was perhaps seen as incompatible with the larger study; certainly the logic of the ethnographic project did not fit the logic of the large survey. The notion of such collaboration was new and perhaps seen as rather far fetched. The production and analysis of survey data are separate functions in QN research, and secondary analysis of the data may not be carried out by those running the survey. The release of the first wave survey data was much delayed and the projects were therefore not synchronised to work together using the iterative approach that had been envisaged.

In retrospect, the level of integration that was envisaged between the micro and macro projects was over ambitious; secondary analysis of the survey data is a more realistic strategy, enabling the macro data to be brought into and utilised within the micro project. This case study also reveals the importance of good collaboration and complementary skills, not only between researchers from two or more studies, but within each team. The Young Lives team is still working out the extent to which the data and data gathering techniques used in the micro survey and the ethnography can be integrated, or will run on in tandem as the study progresses. For example, the extent to which structured questions that provide links to the micro survey can be built into an in-depth conversational interview is a matter for debate. A further challenge for the team has been the linking of a complex and extensive range of QL data, gathered through highly varied techniques. To avoid becoming swamped by the data we adopted a 'funnel' approach for data collection; in the first wave we gathered as much data as possible about the lives and histories of the young people, using an eclectic range of data gathering techniques. We followed up in our second wave by selecting particular themes for focused attention, using a small core of data gathering techniques. Linking complex data and analyses in this project is a matter of trial and error as the study progresses.

Linking Questions and Data: Areas for Development.

The review set out above has revealed some uncertainties among researchers about the status of mixed methods. Should this approach be wholeheartedly embraced, and how might it fit in with the existing UK canon of research orientations and practices? In this concluding section of the paper suggestions are made for reframing the notion of mixed methods in a way that could reconcile current ambiguities. It also suggests a more strategic approach with regard to the infrastructure in which research is supported and practiced. A key area to consider is how to open up and facilitate opportunities for creative research design and practice without being prescriptive about the shape of these designs, or where they fit along a spectrum of approaches.

Reframing mixed methods research

> Different language is needed to get away from this unhelpful divide (Dale 05)

Moving beyond the uncertainties outlined above would be facilitated by a different way of framing the enterprise of 'mixed methods research'. As indicated above, this concept implies a separate methodology in its own right that can be distinguished from unitary research designs. The notion of mixed methods perpetuates the paradigms, implying that there are two discrete methods 'out there' that can then be brought together. The terminology itself is rather confusing. It is not clear, for example, what **mixed methods data** actually are, or to what extent they can be regarded as a separate and distinctive entity from QL or QN data. Also, 'mixed methods' does not always refer to the linking of QL and QN designs. It is also used to denote the linking of QN techniques within large surveys, and QL techniques in ethnographic fieldwork (Brannen 2005; for an example of the latter see Gabb 2008). Moreover, the concept implies a full integration of QL and QN designs within a single study. In practice, it is more likely that only small number of research components will be selected from each tradition, and these will be linked rather than fully integrated. Finally, the linking is by no means necessarily confined to a single study. As shown above, in longitudinal research the linking can be across two or more parallel studies that are thematically and temporally compatible, and that bring together teams with different but complementary skills.

It would seem, therefore, that what are being linked are not QL and QN **methods** per se, but QN and QL **questions and data,** and/or **strategies** for generating and analysing data. Thinking of QL and QN as different kinds of questions, data, and techniques or strategies for producing and working with these data, may be a more realistic way forward. It enables these paradigms to be reframed as distinctive components of research, founded upon different logics. These components can be utilised separately or brought together and linked in flexible and creative ways to construct an appropriate method for a research enquiry. This allows for a careful choice of components that are compatible as well as complementary. Thus researchers do not so much **adopt methods,** as if they are discrete, holistic entities, but creatively **construct methods** that are tailored to their aims and built on the nature of the questions they pose about the world.

Thinking of QL and QN in these ways moves beyond the all encompassing and somewhat constraining notion of mixed methods research. Returning to the question of whether to retain or abandon the terminology of **QL and QN methods**, the problem lies not so much in the terminology of QL or QN as viable orientations to research, but in their designation as discrete **methods** of enquiry. It would seem appropriate to acknowledge the distinctions between QL and QN questions, data and how (both logically and practically) these are produced and used. There is a need also to allow for their authentic separation and acknowledge that most research is likely to continue to be qualitatively or quantitatively-led. What is being discarded here is the framing of QL and QN as **methods** of research, with the implication that these are discrete, all embracing, monolithic entities that are in competition with each other. In turn, this enables the terminology of 'mixed methods research' to be reframed as a process of linking questions and data in the construction of tailored research designs. The process for this is sketched out below.

Questions. It would be helpful to promote the idea of **question-led research** and, at the point of formulating ideas for research, to establish a range of research questions or intellectual puzzles as the foundation upon which research design and practice can be built. These questions may embody the different logics of QL and QN enquiry. They could range from unitary questions alone, through to linked QL and QN questions, which would shape research design in different ways. In terms of strategic development, building this approach into research methods training could be a very useful starting point. A review of existing training programmes would be helpful to see if any changes to current practice are warranted.

Data. Once research questions are identified it becomes possible to think about the range of **data** that are needed to address them. A process of **Data exploration** can identify and explore existing datasets (both QN and QL), through secondary analysis, as well as reviewing analysed and disseminated findings derived from such data resources. New or refined research questions are likely to emerge from these processes. Strategies for generating new data can then be planned to complement existing data and insights, and address emergent research questions. This may involve a unitary design, or the production of QL and QN data within one study, or working

across two or more studies to generate, link and analyse different kinds of data. Varied techniques (e.g. surveys, interviewing, focus groups) can be linked and used either qualitatively or quantitatively to produce the needed data. Bringing QL and QN data into a common frame opens up possibilities for linking data analyses and dissemination in creative ways. The process might involve Laub and Sampson's strategy of systematically weaving back and forth between different kinds of data. This can be done contemporaneously, or temporally, working in and through time to enrich temporal interpretations and explanations.

Reviewing Research Infrastructure

Finally, a review of the infrastructure within which research methods are currently taught, practiced, developed and institutionalised would be helpful (see Separatist Infrastructure section above). Suggestions for the strategic promotion of mixed methods in general have already been made (in Dale 2005). These include reviewing support and funding for those working fluidly in combining QL and QN research components; and reviewing provision for teaching, and for the re-training of methods teachers. Support for specialist training/workshops in the construction of longitudinal methods, for example in linking analyses and interpretations of a range of temporal data, would be well worth considering. The production of resources for effective practice, including more extensive descriptions across the spectrum of longitudinal studies, is another area ripe for development.

For the particular challenges and possibilities of working through time, consultation with longitudinal researchers working in both unitary and linked fashions would be essential. In terms of training, the review could consider how far it is feasible to build capacity in the effective linking of QL and QNL components, thereby producing versatile researchers, or whether it is also appropriate to facilitate the development of collaborative teams that combine an appropriate mix of skills. Given the highly specialised skills needed for longitudinal design, analysis and data management, the viability of this latter option merits close attention. If collaborations within and across teams are to develop, what are the challenges of such team work, what facilitates effective working, and what structures need to be in place to support such collaborations (Dale 2005)? As indicated above, an overview of current practices would give a more detailed understanding of the separatist tendencies that are

currently evident in the UK and an appreciation of where these are helpful and appropriate and where they are not. Such a review could enable a more informed consideration of the reframing of mixed methods research, and what might be needed to support new ways of thinking and practicing.

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