ESRC National Centre for Research Methods (NCRM)

Consultation on Methodological Research Needs in UK Social Science

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Executive Summary

As part of its national strategic remit, NCRM undertakes periodic assessments of national provision and need in methodological research and training through consultation with stakeholders. In November of 2014 NCRM carried out a third consultation on the views of the UK social science research community about current and future methodological research needs.

The target population for this consultation was social science researchers and commissioners, both academic and non-academic, across sectors and at all levels of seniority and experience.

The approach taken to eliciting submissions was to invite and encourage responses from potentially interested individuals and research organisations by sharing an open invitation to submit responses via an online form widely on relevant email lists and websites.

The consultation received 295 responses from researchers and research groups in universities, central government, the private sector, local government, and the voluntary or not-for-profit and across all career stages.   The majority of responses were submitted by senior academics.

Responses were made representing all major social science disciplines. The largest disciplinary areas were sociology (28%), statistics, methodology, and computing (22%), and psychology (17%). Half of respondents to the consultation were currently, or had in the past been, a Principal Investigator on an ESRC funded grant.

Of the 295 suggestions received, 119 (40%) were self-categorised as primarily quantitative, 69 (23%) primarily qualitative, and 95 (32%) were defined as mixed/multi-methods. The remaining 12 (4%) were defined as falling under none of these three headings and categorised as 'other'.

Analysis of the fixed and open responses to the consultation generated fourteen high-level thematic areas which represent the perceived priority areas of methodological research need identified by respondents to the consultation. These were:

- Digital devices and mobile technologies for data collection
- Participatory approaches
- Methods for assessing and enhancing survey data quality
- Narrative methods
- Analysis of longitudinal data
- Analysis of online digital and 'Big Data'
- Analysis of administrative data and methods for data linkage
- Innovation in ethnographic approaches
- Small Area Estimation
- Bio-social data analysis

- Experimental and observational methods for policy evaluation
- Bayesian Data Analysis
- Visual and arts-based approaches
- Multi-modal methods

1.   Introduction and Background

The ESRC National Centre for Research Methods (NCRM) was established in April 2004 with a mission to enhance the quality and range of research methods used by the UK social science research community. As part of its national strategic remit, NCRM undertakes periodic assessments of national provision and need in methodological research and training through consultation with stakeholders. An extensive consultation on national strategic research needs in the area of research methods was undertaken in 2006 (Bardsley & Wiles, 2006) and a further 'light-touch' consultation was undertaken in 2009 (Wiles, Bardsley & Powell, 2009). These assessments have informed NCRM's research commissioning over the period 2006-2014 and have fed into the development of ESRC's framework for methods and infrastructure.

From October 2014, NCRM comprises a new partnership between the Universities of Southampton, Manchester, and Edinburgh. The collaborating partners provide a coordination function for methodological research and training, deliver face-to-face and online training, maintain the Centre's website and undertake innovative methodological research. In the Spring of 2015, a call for proposals to undertake additional methodological research projects as part of NCRM over the period 2016-2019 will be issued by ESRC. The call will be open to all research organisations eligible for ESRC funding. To inform this call for proposals, in November of 2014 NCRM carried out a third consultation on the views of the UK social science research community about current and future methodological research needs. This report sets out the key findings of the consultation.

While we would not anticipate a completely new set of methodological research priorities to have emerged since the 2009 consultation report, much has changed since NCRM was founded almost a decade ago. Rapid and pervasive socio-technological change has created new ways of acquiring, storing, manipulating and transmitting huge volumes of data, often in real-time, as well as stimulating new modes of communication and collaboration between researchers within and across disciplines. Novel forms of data have also emerged, with biological markers now routinely collected alongside social and economic outcomes in surveys and different sources of administrative and transactional data increasingly being linked to one another, as well as to cross-sectional and longitudinal surveys.

Simultaneously, the internet and the broad take up of web-enabled mobile technologies have given rise to novel ways of collecting research data, in addition to creating new social phenomena which merit social scientific investigation in their own right, such as blogging, social networking, tweeting, image sharing, and search engine usage. These changes in the data landscape have been accompanied by new perspectives on data accessibility, curation, replication, in the 'democratisation' and ethics of research conduct, and by radical shifts in the substantive and policy context in which social science research is undertaken. A fresh consideration of current and future methodological research priorities is, therefore, timely.

2.1   Eliciting Submissions to the Consultation

The target population for this consultation was social science researchers and commissioners, both academic and non-academic, across sectors and at all levels of seniority and experience. There is no existing or feasibly constructible sampling frame for this population, so it was not possible to draw a random sample with known probabilities of selection. The approach taken to eliciting submissions was, therefore, to invite and encourage responses from potentially interested individuals and

research organisations by sharing an open invitation to submit responses via an online form widely on relevant email lists and websites.

An email providing information about the consultation, with a link to an online questionnaire, was sent to all subscribers to the NCRM mailing list (n=3,903). The invitation email was also sent by ESRC to a list of all current award holders and to an NCRM mailing list of 740 academic and professional/third sector research administrators and academic Heads of Schools. The consultation was the top news item in the November 2014 NCRM Research Methods Bulletin and was also a news item on the NCRM website. Four tweets from the NCRM Twitter account inviting submissions to the consultation were posted between 13/10/14-4/11/14, these were shared 26 times. The online consultation questionnaire was open from 9th October until 10th November 2014.

2.2   Structure of the Online Questionnaire

The questionnaire was developed and implemented using LimeSurvey®, a free, open-source software package. The questionnaire was semi-structured, containing a mixture of closed and open-ended questions. Figure 1 provides an overview of the questionnaire structure. Respondents to the consultation were first asked some background information about themselves, their sector of employment, disciplinary area, career stage, and so on.

After the background questions, respondents were asked if the method or methodological area which they perceived as in need of development was predominantly quantitative, qualitative, mixed methods, or whether none of these three headings was appropriate. Depending on the response to this question, respondents were then filtered to another set of fixed response questions which asked whether the area in question relates primarily to data collection, data analysis, or both.

Respondents were then presented with a list of methodological frameworks and techniques and asked to identify which of these were related to the method they wished to propose. Respondents could select as many items from the checklist as they wished. All respondents were then asked to provide in their own words (i.e. they had to type their response rather than pick a fixed response alternative), a name or descriptor for their proposed methodological area. In addition to a heading or title for the method, respondents were also asked to provide a description of the methodological area/technique, to say why development is needed in this area, what existing research initiatives there are in this area and whether/how the development they propose might add value to existing data sources.

Having reached the end of the questionnaire, respondents were asked if they wished to suggest a second methodological research need. If they indicated that they did, they were returned to the first 'Quantitative, Qualitative or Mixed Methods' question and proceeded through the questionnaire in the same manner as described above. The full questionnaire is included in the Appendix.
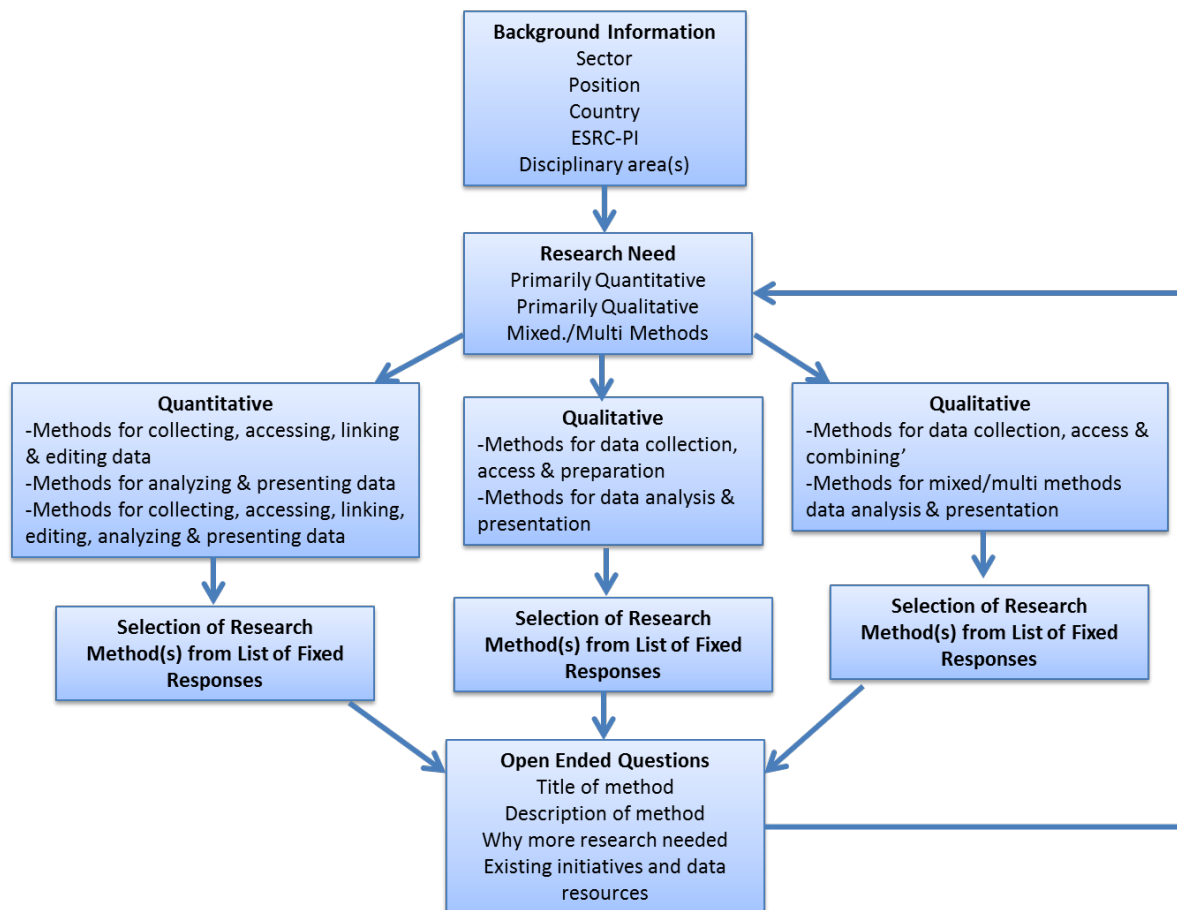
Background Information
Sector
Position
Country
ESRC-PI
Disciplinary area(s)

Research Need
Primarily Quantitative
Primarily Qualitative
Mixed./Multi Methods

Quantitative
-Methods for collecting, accessing, linking & editing data
-Methods for analyzing & presenting data
-Methods for collecting, accessing, linking, editing, analyzing & presenting data

Qualitative
-Methods for data collection, access & preparation
-Methods for data analysis & presentation

Qualitative
-Methods for data collection, access & combining'
-Methods for mixed/multi methods data analysis & presentation

Selection of Research Method(s) from List of Fixed Responses

Selection of Research Method(s) from List of Fixed Responses

Selection of Research Method(s) from List of Fixed Responses

Open Ended Questions
Title of method
Description of method
Why more research needed
Existing initiatives and data resources

Figure 1: Content of the online questionnaire

2.3   Analysis of Consultation Submissions

The online questionnaire comprised both fixed-choice and 'free-text' responses. All free text submissions were read by the project researchers who coded them into broad methodological themes or areas. The fixed-choice answers were used to contextualise and resolve ambiguity in the coding of the open-ended responses and are not reported on separately in this report. The methodological areas were generated from those identified by responses in the free text submissions and were informed by the categories of NCRM's research methods typology (http://www.ncrm.ac.uk/training/Typology.pdf). The researchers also examined and discussed the types of issues underpinning respondents' arguments in support of the need for different areas of research. These arguments were then presented within each of the corresponding methodological themes.

Responses to the open-ended questions varied in quality and completeness. Some responses provided no, or very limited detail, about the specific area of research need and/or no rationale for why the method was needed. Those suggestions which were only a title of a methodological area were not included in the analysis of the open-ended responses if they were not also mentioned in other responses.

Some responses provided limited information about the nature of the methodological development, with just a general topic heading and no supporting justification of the need for it to be developed. Other responses were more detailed and provided specific areas of research need and, in some cases, a detailed research agenda. In the discussion of needs within particular areas, the report focuses predominantly on these more detailed responses.

Several responses identified a need for methods to be developed to address a specific topic or substantive area of research (for example, research in dementia, international development, global energy use, and so on). Others identified research needs within specific disciplines (e.g., research methods for socio-legal studies, educational research, psychology). While NCRM recognises the importance of methods to address substantive problems and for methodological development within disciplines, the focus of this consultation is on methodological developments that can be applied across disciplines and to a range of substantive areas. Therefore, responses focusing on methodological development within disciplines or which were framed around a single substantive problem, are not reported on here.

A number of responses referred to the need for training in specific methodological areas. Training and capacity building is beyond the remit of this consultation exercise, which focuses on methodological research needs. A separate consultation on training needs will be undertaken by NCRM during the first half of 2015.

3.   Results

Because respondents could make multiple suggestions of areas of research need, it is necessary to distinguish between submissions and suggestions. 260 submissions were made to the online questionnaire. While the majority of these submissions were made by and on behalf of individuals, a number were made, explicitly or implicitly, on behalf of research groupings such as centres and institutes. Of the 260 submissions, 235 suggested 1 area of research need, 15 provided 2 suggestions and 10 provided 3 suggestions. In total, therefore, 295 suggestions were received.

3.1   Who Responded to the Consultation?

Of the 260 responses to the consultation, the vast majority (90%) were from individuals or research groups from the academic sector. However, although a clear minority, suggestions were received from all sectors: central government; the private sector; local government; and the voluntary or not-for-profit. Reflecting this largely academic composition, a third of responses were made by professors while just over a third were from lecturers or senior lecturers (including assistant/associate professors). Researchers comprised 10% of responses and 3% were from PhD students. Administrators, research managers and policy-makers accounted for less than 1% of responses, with 13% classifying themselves as 'other'.

Responses were made from a broad range of disciplines (see Table 1). The largest disciplinary areas were sociology (28%), statistics, methodology, and computing (22%), and psychology (17%). However, submissions were received from all social science disciplines. 54% of respondents to the consultation were currently, or had in the past been, a Principal Investigator on an ESRC funded grant.

Table 1: Disciplinary Areas of responses to the online consultation

Discipline	Frequency (n=260)	Total %
Area Studies	7	2.7
Demography	12	4.6
Economic and Social History	7	2.7
Economics	28	10.8
Education	42	16.2
Environmental Planning	7	2.7
Human Geography	23	8.8
Linguistics	5	1.9
Management and Business Studies	24	9.2
Political Science and International Studies	20	7.7
Psychology	45	17.3
Social Anthropology	9	2.5
Social Policy	31	11.9
Social Work	5	1.9
Socio-legal studies	5	1.9
Sociology	72	27.7
Science and Technology studies	16	6.2
Statistics, methods and computing	57	21.9
Other discipline	45	17.3

*Note: more than one discipline could be selected so percentages are grand total of selections, not percentage of responses.

Of the 295 suggestions received, 119 (40%) were self-categorised as primarily quantitative, 69 (23%) primarily qualitative, and 95 (32%) were defined as mixed/multi-methods (Figure 2). The remaining 12 (4%) were defined as falling under none of these three headings and categorised as 'other'.
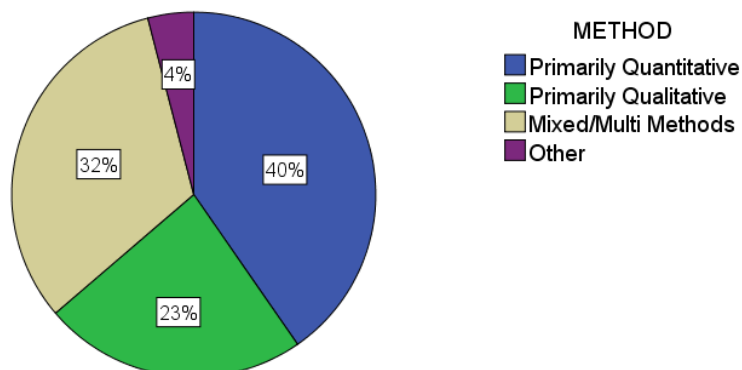

Figure 2: Is the method you are proposing primarily quantitative, qualitative, or mixed?

3.2   Areas of Methodological Research Need Identified

Analysis of the free-text responses generated fourteen primary areas of methodological research need. These were:

- Digital devices and mobile technologies for data collection
- Participatory approaches
- Methods for assessing and enhancing survey data quality
- Narrative methods
- Analysis of longitudinal data
- Analysis of online digital and 'Big Data'
- Analysis of administrative data and methods for data Linkage
- Innovation in ethnographic approaches
- Small Area Estimation
- Bio-social data analysis
- Experimental and observational methods for policy evaluation
- Bayesian Data Analysis
- Visual and arts-based approaches
- Multi-modal methods

Although these areas of research need are presented and discussed under separate headings, there was in practice a degree of overlap between them. For instance, 'Bayesian Data Analysis' might underpin statistical methods for the analysis of longitudinal, bio-social, and 'Big Data'. Likewise, digital devices and mobile technologies might be used to enhance survey data quality, and new methods for the analysis of longitudinal data might be applicable to various forms of 'Big Data'. It should be borne in mind, therefore, that these category headings are not intended to be mutually exclusive.

While some identified areas are explicitly quantitative (e.g. small area estimation, Bayesian data analysis) and others explicitly qualitative (narrative methods, visual and arts based approaches), the majority of topic areas comprise a range of quantitative, qualitative, and mixed methods. In the sections below, we describe the broad content of the responses received under each of these broad topic headings with illustrative quotations.

Digital devices and mobile technologies for data collection
The most frequent response to the consultation related to research into the use of new digital technologies, particularly mobile and 'smart' web-based, and 'wearable' devices for quantitative, qualitative, and mixed methods research designs. Suggestions referred to the use of such technologies to undertake automated video interviewing, questionnaire completion, location tracking, photograph and video capture, barcode scanning, and other relevant features of digital data capture via such devices which may become more prevalent in the future. This theme also covered the use of these new and emerging devices as part of a mixed-mode data collection strategy in surveys, indeed all suggestions of multimodal surveys included either an online or smartphone component.

Suggestions for specific research topics for data collection using these types of devices included: sampling; making and maintaining contact with participants; maximising response rates (both for

web-based and face-to-face data collection); all aspects of data quality assessment and enhancement; cost efficiency; assessing optimal interview length for different devices and technologies; measuring time use; and how such technologies may be engaged with and used differently by different population sub-groups.

The value of undertaking further research into these new modes of data collection was justified on the basis of the need for research methods to reflect societal changes and public expectations, to reduce costs, and to enable new types of data to be collected in novel ways, particularly with more frequent points of data collection over shorter time periods. Current barriers to realising the potential of new digital technologies for data collection, both standalone and in a mixed-mode context, included a currently under-developed framework for understanding and assessing data quality in this area and a lack of consensus and guidance on best practice.

Participatory approaches

Interest in participatory research has grown significantly in the last twenty years and this is reflected in the large number of responses received to this consultation. Participatory research is characterised by the involvement of research participants across various (and potentially all) stages of the research process and has been identified as particularly important for research about 'hard to reach' populations, marginalised groups, and those with communication difficulties.

There is a broad range of participatory research methodologies, those identified by consultation responses as areas of research need were: Participatory Action Research; participatory mapping and co-production/co-creation. The research needs in relation to Participatory Action Research were identified as managing the tension between scholarship and activism and the need to define good practice in use of the method. Participatory mapping, which is an approach used to generate shared understandings of issues in a particular geographical area, was identified as an area in which considerable development is needed because critical perspectives on methodology in this field are lagging behind those in commensurate fields. In relation to co-production, where researchers and community partners work together to develop new knowledge, the need to describe co-production methodologies more precisely and, in particular, to draw on methodological traditions from the arts and humanities were identified as important in developing approaches:

For example the field of practice as research, very strong in the Arts and Humanities, remains largely ignored within Social Science. Likewise the field of relational or dialogic aesthetics is poorly understood. More traditional humanities methodologies such as literary inquiry, oral history or storytelling likewise are very useful methodologies in co-produced projects … more needs to be done to both historicise Arts and Humanities approaches to co-production and to bring them into dialogue with Social Science to become useful to researchers working with ideas of emergent practice. [ID 767]

The need for development specifically in relation to participatory data analysis was also identified. One response argued that much development work has been done in relation to participatory methods of data collection but that the key area of need for methodological development in this field relates to participatory approaches to the analysis of data, both qualitative and quantitative:

There is a keen need for research into methods of analysis that are accessible to the wider community involved in participatory research …some methods are being developed within projects but limited effort has been, and is likely to be, put into developing this side of participatory research without methodologically oriented future research. [ID 999]

Participatory approaches were identified most frequently in relation to qualitative approaches. However, responses also identified the importance of this approach to research methods more broadly, particularly in the context of exploring and describing public views. Research which seeks to include public views in policy formation was identified as particularly relevant and an area in

which methodological development is necessary in relation to mixed methods. A range of methods are used aimed at 'giving people a voice' in policy formation and these are cross-disciplinary and multi-method including economics-based preference elicitation techniques, ethical analyses, citizen juries and/or qualitative deliberative techniques. One response noted:

Public consultations are now customary in writing new policies, but little is known about how to incorporate views that might be conflicting, competing accounts. Robust methods are needed that acknowledge the plurality of views but also provide meaningful guidance for policy. These are likely to draw on quantitative as well as qualitative techniques and expertise across disciplinary boundaries especially ethics and economics. [ID 238]

Another response identified the importance of involving the public in the development stage of research projects. This response proposed establishing a model for crowdsourcing research questions from the public with the aim of encouraging participation and creating research outputs that have public value. The programme of mixed-methods work proposed comprises an exploration of: when and how the public can be involved in the development of research; what are the best platforms to facilitate wide and representative involvement; and which methods are appropriate for groups that are often excluded from research.

Methods for assessing and enhancing survey data quality

Many submissions focused on what can broadly be referred to as different aspects of survey data quality, in terms of both assessment and enhancement. Survey nonresponse was suggested as a key topic of research in its own right but was also mentioned as a specific sub-topic in a number of other methodological areas (cf. longitudinal data analysis). This was noted frequently as a research need related to mixed-mode (particularly web) surveys, both in the sense that mixed-mode surveys represent a potential remedy for declining response rates in traditional, particularly face-to-face, modes and also as an area in which greater understanding of underlying mechanisms is required, irrespective of survey mode.

The current situation in the UK is that headline response rate is still used as a benchmark for representativeness, despite extensive evidence demonstrating that increased response rate does not necessarily equate to a better quality sample.

Clear evidence on this question will enable survey commissioners to make good decisions about target response rates, which balance the precision of statistical estimates against the increasing costs of data collection. This is particularly important in the light of falling public sector research budgets, and the increasing difficulty of persuading the public to take part in surveys. [ID1129]

Some suggestions in this area related to assessing and correcting for measurement error and evaluating how measurement error is related to other sources of survey error. In particular a better understanding of the link between response rate and nonresponse bias and how this relates to survey costs (e.g. assessing the cost-effectiveness of increasing headline response rate by a few percentage points) and measurement errors, particularly 'satisficing' (where the respondent provides a 'good enough' rather than an optimal response in order minimize cognitive costs). Further development of latent variable models for detection and correction of a range of measurement errors was suggested in several responses.

Justifications for why research is needed in this area included that it would enable those who commission and coordinate surveys to deploy limited budgets to maximum effect. This echoed some of the reasoning for further research into mixed-mode surveys, where the trade-offs between quality and cost were not felt to be adequately understood at present.

Failure to control for these sources of error will not only bias the estimated effects, but may also confound apparent interactions and meditational effects that would otherwise have been identifiable. The latest extensions of latent variable measurement models which allow the specification of complex error structures, including random effects invariance models should be effectively communicated and widely disseminated to applied users. In particular, the assessment of measurement equivalence is of paramount importance, especially in comparative work. [ID1118]

Other areas of research suggested related to developing a better understanding of *why* response rates are falling and how this understanding might lead to improved data collection procedures. Using paradata, examining the effect of interventions other than incentives on response rates and research into the experiences of survey participants were all proposed.

Other responses suggested that conventional survey sampling methods are not adequate for some emerging areas of social science research. These included analysing different ethnic groups within smaller UK countries and survey sampling and data collection in vulnerable communities, regions and countries, particularly areas of conflict or violence. While the large national and international surveys have been widely regarded in this consultation as highly valuable resources, there are also gaps in the coverage of these surveys in areas which could have significant social implications.

Narrative methods

Narrative approaches have gained currency over the last decade or so. Narrative approaches explore the ways in which people make and use stories to interpret the social world. Narrative researchers use texts such as autobiographies, journals, letters and stories, as well as interviews, to understand the ways people create meaning in their lives through narratives. These approaches cover a broad field and include biographical and autobiographical approaches. In terms of research need, several responses noted the need to bring together the diverse set of approaches into a coherent framework and to identify the differences and similarities of approaches and their utility:

Narrative research is a broad and heterogeneous field. Bringing congruent aspects of it together and developing clear definitions of difference and commensurability between some parts of the field are both key future tasks. [ID 274]

Analysis of longitudinal data

A large number of responses advanced the case for the development of new methods for the analysis longitudinal data. Submissions in this area related to both quantitative and qualitative data, though the former were more numerous than the latter. Responses for quantitative methods development suggested the need for new analysis methods for application to both repeated measures (panel) and repeated cross-sectional data. Innovation in methods for the analysis of longitudinal data can also be applied to other types of complex survey data such as biosocial, cross-national, transactional, social media, and spatial data, which may themselves have a longitudinal component.

Cross-national longitudinal data was highlighted as being particularly important for policy-making, yet both trends and comparisons between countries are highly complex to investigate analytically. For instance, the Programme for International Student Assessment (PISA) survey was cited as politically very high profile although most analysis is currently failing to take into account the complexities of these data sets. Other suggestions noted that analysis methods for longitudinal data are better developed for linear than for categorical and ordinal outcomes and advocated the need for methodological development of non-linear modelling techniques.

The most common argument for developing methods for longitudinal data analysis was that the UK possesses very rich longitudinal data resources (BHPS/UKHLS, ELSA, cohort studies, ONS Longitudinal Study) which are currently underutilised by the social science community. This is partly to do with training and capacity building but is also at least in part because analytical methods have not kept pace with advances and investment in data collection methods.

Longitudinal data of both familiar [] and more novel (e.g. from various `big data' sources) types are increasingly available, and the best type of data for many kinds of research questions. Yet the methods of analysis for them (especially for more complex multivariate settings) are not yet complete, and even existing methods may be underused in social research. [ID 1130]

Another response argued that the primary 'goal' of the investment in longitudinal datasets was to provide stronger evidence for causal mechanisms than is possible with standard cross-sectional data sets and that this was not being adequately achieved with currently available methods.

A strong case was also made for the development of Qualitative Longitudinal Research (QLR) methods**.** This identified specific strategic needs building on and extending the work of the Timescapes programme and its archived material. Specific areas identified were: researching and refining the relationship between temporal theory and method; advancing secondary analysis by working across qualitative longitudinal (QL) datasets and developing and refining analytical tools to support secondary analysis; advancing medium-scale qualitative panel studies; exploring synergies between QL enquiry and action/participatory modes of research. The response argued:

As a methodological paradigm, spanning all forms of qualitative and temporal enquiry, there is huge scope for the development of QL research across the areas outlined above. For the purposes of a specification we would suggest inviting researchers to propose research that would cover one or more of these areas of development. [ID 1117]

Analysis of online digital and 'Big Data'

Possibly the most significant developments in research methods and data in the past five to ten years relate to various forms of digital and web-enabled research and this was reflected in responses to the consultation. Responses under this topic heading referred to the use of qualitative and quantitative and mixed-methods approaches. Digital diary techniques, including the use of blogs and social media, were also identified as potentially important areas of development.   The need to identify robust, transparent, replicable and ethical strategies for collecting and analysing social media content was frequently noted. In relation to social media, one response noted:

This research area requires inter-disciplinary collaboration. Particular challenges arise in analysing written and visual content; combing quantitative ('big data') and qualitative methods; and understanding specific social media practices in the wider context of offline cultures and behaviours. Social media is now a key arena of social interaction from many populations, and the potential application of research methods in this area is extensive. There is an urgent need to continue the development of research in this field [ID 739]

Many responses referred to the need for development of methods for the capture and analysis of various forms of so-called 'big data'. 'Big data' here refers to a broad range of data types but particularly to 'naturally occurring', high-volume digital data which are often available in 'real-time' and which are not produced with social scientific research as an objective. In particular, suggestions under this heading related to the need to develop analysis methods for social media data (e.g. Facebook and Twitter), and to commercial/transactional data from loyalty cards and so on.

Particular analytical needs highlighted were linking datasets, visualisation of data, analysis of data in 'real-time', the ethics of using different forms of personal and potentially disclosive data for

research, dealing with 'missing' data, representativeness and inference. Research exploring how technology is transforming data analysis and the impact of technology on how and what researchers investigate, as well as their findings was noted as important:

many of us are swept up in it [social media] without having time to reflect on the implications for our craft. It would be good to see the ESRC leading the way in researching these issues [ID 735]

The overriding argument for undertaking methodological development for the analysis of 'Big Data' was that the potential value of such data was not currently being met with conventional methods and both its analytical potential but also its limitations were not fully understood buy the social science research community. There was a commonly expressed view that the volume and complexity of these new data assemblages have rapidly outstripped our ability to handle and analyse it.

Newly available big data sources are too large and too rich to be linked, structured and analysed using existing statistical models and computational approaches. We are failing to capitalise on datasets that have potential to address major issues in public policy and business decision-making. [ID133]

The importance of ensuring that social scientists approach 'big data' with the objective of using them to answer relevant substantive and policy questions was noted; we should not be asking 'what questions can we answer with Big Data?' but 'what important substantive and policy questions can Big Data help us to answer?'.

The need to develop mixed methods approaches to analyse a range of online material, particularly social media content, was also frequently noted. As well as social media, responses also identified the need to develop mixed methods approaches for web analytics and 'big data' more generally. One response noted:

I would argue for research investment which will deepen and strengthen our understanding of the methodology of new forms of data, specifically but not exclusively social media data. I'd like to see research using new forms of data, including methodological experiments and innovations, which look at how new forms of data can be 'read' alongside conventional data collected through social surveys or which are otherwise traditionally generated. New forms of data are now embedded in our social world. Our methodological approaches/understanding of making use of these data robustly are still in their infancy. The UK could be a leading light in this new and growing field of research if it invests at this point. [ID 1001]

Another response noted the importance of linguistic techniques to manage these data and noted the importance of mixing qualitative and quantitative methods:

Current methods of communication generate very large amounts of text data, e.g., millions of tweets or responses to on-line surveys. Researchers need ways of processing these. Methods need to be statistically sophisticated and 'bottom up' but also need to be interpretable in terms of discourse and language. We need ways of integrating the best of existing approaches to permit more accurate, comprehensive and nuanced interpretations of very large data sets. [ID 907]

Another response identified the need for methodological development on corpus linguistics and its integration with qualitative research, particularly discourse analysis. The response notes:

Corpus linguistics, while making a notable impact, is still relatively new. The application of it in the social sciences and techniques for integrating it with qualitative research are still being worked out. Current approaches are undoubtedly provisional and much work remains to be done to harness the potential of the approach to the study of research questions with language at their core. [ID 987]

Finally, one response identified a need for research to develop methods in relation to the use of GIS/Mapping in a range of social science methods. The response noted that geographical methods can be used in survey research and in a range of qualitative approaches in ways that improve findings, enhance data and engage populations both during and after fieldwork. They argue that often methods using GIS or mapping are used in an ad hoc way and that methodological development is needed to make better use of the opportunities it provides and for integrating it into existing approaches in a mixed methods design. The response notes:

While work has been carried out on survey methodology and other qualitative and quantitative methodologies, little has been done on how modern geographical methods fit in and their specific benefits. This is not one methodology but looking at the multiple different ways that geographical methods fit into current research [ID 408].

Analysis of administrative data and methods for data linkage

Analysis of administrative (and commercial) datasets was mentioned in a large number of submissions, although this category did attract a number of primarily substantive, rather than methodological suggestions. Methodological developments to improve the linkage of administrative data to survey data were frequently noted as an area of strategic need. Particular methodological issues identified in responses under this theme included: addressing confidentiality needs without placing overly restrictive conditions on access, understanding measurement errors that occur from data disclosure control procedures, streamlining data linkage systems, incorporating estimates of linkage error into substantive analyses, establishing a framework of inference for non-sample survey data, understanding discrepancies between administrative and survey data, and dealing with missing data.

The arguments for investment in research into these methods were primarily that researchers are not utilising available data as the systems for linking data were too complex and that analysis has not yet caught up with the complexities of the data. It was argued that administrative data are currently under-utilised partially as a result of analysis methods lagging behind data creation/harvesting methods. Cost efficiencies in the total social science budget could be leveraged with greater and more appropriate use of administrative and linked data. In this area in particular, there were suggestions for greater researcher support and recommendations to be made to data providers and users. It was argued that as things stand, progress is fragmented and best-practice not widely shared.

Innovation in ethnographic approaches

Ethnography is a broad and well established methodological framework in the social sciences but several developments in this general area have been made in recent years. Responses noted the need for further development in: sensory ethnography (in which traditional ethnographic methods are expanded to include exploration of people's sensory experiences) and critical ethnography (in which critical theory is applied to an ethnographic approach). These were both identified as emergent methods that are currently under-developed. Linguistic ethnography, combining ethnography and linguistics, was also identified as an important emerging approach, which has potential utility in improving our understanding of longstanding policy problems:

Linguistic ethnography is an emerging paradigm which seeks to bring together the methodological perspectives of ethnography and a range of approaches to linguistic analysis. As an emerging and growing field, linguistic ethnography would benefit from consolidating work exploring the range of approaches to data collection and analysis currently in practice, and particularly looking at how the

insights generated from the detailed work carried out in specific case study settings can be usefully brought together to build on these understandings [ID 992]

Small Area Estimation

Development of methods for small area estimation (SAE) was suggested as an area of research need in several responses. SAE describes a range of alternative methodological techniques for the estimation of population characteristics at small area levels from survey and administrative data, where (survey) data do not currently exist, or are too sparse for the production of robust estimates.

For instance, there is a great deal of interest in small geographical area estimates of income and earnings. These are not currently available from the census and no existing survey has a sufficiently large sample size to enable precise estimates at levels much below Government Office Region. SAE can be used to produce estimates at small spatial scales, such as Local Authorities, or Super Output Areas, from a combination of existing data sets at both the individual and aggregate levels. There are widely differing approaches available for producing small area estimates, such as multi-level modelling and spatial microsimulation and these remain rather disconnected. Developments which seek to understand commonalities and differences in these different frameworks would, it was noted, be beneficial.

SAE was suggested as an area of research need in its own right but also as part of submissions in other topic areas, particularly the data disclosure control aspects of data linkage, where small area granularity may be lost in the process of maintaining confidentiality. Key areas of research need are the development of new analytical approaches for SAE, better understanding of the validity of SAE estimates, and how estimates using different methodological approaches compare to one another. Other areas suggested were multivariate and non-parametric estimation in the context of missing data. The development of approaches which yield more robust and useful measures of error in SAEs is important for the continued vitality of this field.

Arguments for investment in methods for SAE included the substantial interest of policy makers in robust small area estimates, particularly considering the likely demise of the decennial census in the coming years, at least in its current form.

An increasing drive to timelier inter-censal small area estimates of distributions (such as income, or unemployment by ethic group), including the ONS looking for ways of replacing the census with reliable small-area estimates post 2021. [ID271]

Bio-social Data Analysis

It is widely acknowledged that the social sciences must be at the forefront of efforts to develop an understanding of the complex interplay that exists between genes and environment in the expression of phenotypes. Furthermore, social scientists in the UK may be less well prepared to integrate the social and the biological than counterparts in other comparator nations (*UK Strategy for Data Resources for Social and Economic Research* 2013). Several suggestions were received to this consultation which centred on the need to develop new approaches to the analysis of data which integrates markers of biological development and functioning with more traditional social and psychological outcomes.

Much of the early social-scientific work in this area has focused on issues relating to the collection of various kinds of biological data from general population samples. Now the need is to develop analytical approaches which are capable of shedding greater light on how the biological and the social are related and how these relationships shape a broad range of key individual level outcomes relating to domains such as health, education, and well-being.

In broad terms, there were three different types of suggestion made for the development of bio-social analysis methods. First, new analysis methods are needed for specific types of biological data, of which there are many different forms still emerging. For example, neuroscience signal data which are highly specialised but of key importance for substantive areas of psychology that are within ESRC's remit. Second, new statistical techniques are needed which integrate aspects of biological analysis with those from the social sciences and which are capable of addressing the transformative research questions with the new kinds data available to biosocial researchers. The need to develop methods which avoid 'data-dredging' and 'fishing expeditions' in the search for biological bases of social outcomes was noted.

There is a real need for methodological research that develops a new form of bioinformatics/ statistical analysis which combines the strengths and approaches in a meaningful way. In addition social scientists need support to bring them together into networks/ teams that span into the biological and biomedical sciences. [ID944]

Third, there was some overlap with suggestions under the heading of 'digital devices and mobile technologies', where it was argued that the collection of bio-social data using mobile digital devices could be usefully developed. Collection of biomarkers using mobile devices is unlikely to fully replace measurements made face-to-face in the short to medium term. However, a great deal of biologically informative data could potentially be collected both time and cost effectively in this way and failure to develop appropriate methods will be a barrier to development of research capacity in the future.

It was commonly noted in responses which proposed the need for development in this area that bio-social analysis is widely seen as a key area of fundamental knowledge development in the decades ahead and that social scientists must, therefore, continue to develop and apply appropriate methods if they are to remain relevant in the medium to long term. It was also noted that ESRC has invested heavily in the collection of biomarkers, particularly in its longitudinal studies but that their analytical potential is currently a long way from being fully realised.

Experimental and observational methods for policy evaluation
The need for development of methods for the evaluation of the effectiveness of policy interventions has been an area of research need identified in all previous NCRM consultations and were again evident in 2014. Some responses in this area referred to the need for developments in methodologies for randomised controlled trials, particularly the incorporation of mixed methods designs in which qualitative research is an integrated aspect of trials both before and subsequent to data collection. However, most responses referred to the need for developments to evaluation methodologies for policy evaluation. This was noted as particularly important in relation to developing robust methods for use by Government researchers (and identified by one Government research response) and for policy makers.

The development of 'realist' methodologies for policy evaluation, which draw on a wide range of methods in mixed designs, was noted. This approach, as one response detailed, does not privilege particular methodologies but rather aims to find the appropriate evidence to test ideas which might be, for example, qualitative, quantitative, archived, administrative, transactional, longitudinal, systematically reviewed or co-produced – or indeed combinations of all these. One response noted the importance of realist methodologies, using mixed methods as appropriate, and identified an indicative agenda for research development:

Realist methodologies are specifically developed to understand how and why particular social interventions work in some ways in certain contexts and how and why they change through time. Realist methodologies bridge the quantitative and qualitative divide and traverse disciplines. Interest and application of realist methodologies in the social and human sciences is increasing. We suggest

the following indicative list of potential areas for methodological development: extending methodologies of synthesis; investigating the ways in which realist methodologies can be brought into conversation with experimental methods and with primary, secondary, archived, administrative and transactional data; and building on the growing body of realist research to test ideas of re-usable conceptual platforms, common theories drawn on and applied across a wide range of research addressing complex social mechanisms and structures. [ID 1084]

In addition, one response noted that, as the four countries of the UK become increasingly divergent in terms of social (and economic) policy, there is great scope for evaluating the consequences of different social policy levers.

The development of methods for research synthesis and systematic review of evidence was identified in several responses. Although it forms a key plank in the set of methodological tools for the analysis of policy, methods of synthesis and systematic review also have broader applications across the social sciences. Research synthesis is an established method and there are varying approaches to quantitative and qualitative evaluation of research evidence and incorporating evidence in mixed designs. Nevertheless, responses noted that further methodological development in this area was still necessary:

This is not a completely new area of methodological development, but an emerging one where some further development is required. The evidence base is also (often) both qualitative and quantitative. In particular, there is scope to develop more generic methods to conduct such reviews on a range of timescales – from rapid reviews (which are often requested by Government departments) to more in-depth, full-scale reviews. [ID 587]

Suggestions relating to experimental and intervention designs were largely, but not exclusively related to methods of analysis rather than design. Experimental and other forms of intervention designs remain the gold standard for causal inference, with experimental methods becoming more important in a number of substantive and disciplinary areas.

Issues raised by responses to the consultation relating to experimental and intervention designs were: measurement error in self-report data interacting with treatment allocation; analysis of single cases which are important for studying rare conditions or events and averaging across participants is not always appropriate; analysis of experimental data collected using digital and mobile technologies; control group methods for excluded or rare groups; and improved meta-analytical procedures.

There has been a growth in RCT studies of social and educational trials. However, major methodological challenges exist that undermines the validity of such trials. In Particular, interventions may interact with the measurement of the primary outcome, undermining the validity of any trial outcomes. It may be possible to develop relatively simple and unobtrusive procedures to control for differential changes in measurement error across intervention and control groups within RCTs ensuring the validity of large scale trials. [ID268]

There was an overarching view expressed that the methods currently being used are not always suitable or sufficiently advanced for the practical and social research situations in which they are implemented. Too often a 'medical RCT' model is transferred inappropriately to analyse social and psychological interventions. Methodological development is needed to ensure that methods for analysing experimental and quasi-experimental designs are appropriate to social scientific contexts.

Bayesian Data Analysis

A number of responses noted the limitations of the classical/frequentist framework for quantitative analysis in the social sciences and proposed further developments in and communication of

Bayesian Data Analysis (BDA) as a useful remedy. Not only does BDA offer a more satisfactory (for some) framework for population inference, Bayesian estimators, particularly Markov Chain Monte Carlo (MCMC) can enable new and more powerful approaches to estimation of model parameters in existing frameworks such as Multi-level Modelling (MlM) and Structural Equation Modelling (SEM).

The reasons given for further development in BDA were frequently substantive rather than methodological and it is interesting to note that may comments focused on the need for development of software and related tools, which enable non-statisticians to implement statistical models which are not generally available in generic (cf commercial) applications. Concerns were expressed that other countries, particularly the USA were advancing more rapidly in this area and that additional investment is required to maintain the UK's international standing in the development of advanced quantitative methods for the social sciences (cf multi-level modelling).

Particular suggestions for developments in MCMC estimation related to bias estimates, testing robustness of secondary data analysis and interpretation through resampling and simulation of the gap between the theory of MCMC having the potential to solve many problems but its application being inefficient.

We are at a point in time where data has never been more available but data is getting Bigger, often of lower quality (i.e. with missing values, measurement errors and from unusual and non-random sampling sources) and of increasingly complex structure. For almost all these issues the solution often suggested is to use a Bayesian framework and thus Monte Carlo Markov Chain methods. Efficient methods for dealing with problems such as missing data, measurements errors, spatially dependent data are being proposed but as usual there is a gap to be plugged between the methods being developed in isolation and available software tools that allow the social science user who has data requiring such methods to understand them and use them properly. [ID1108]

Bayesian Data Analysis was also suggested as one way of moving beyond the conventional Null Hypothesis Significance Testing (NHST) framework. NHST has a number of well-known deficiencies, at least in its common application in much of the social sciences, and BDA was proposed as one potential means of improving practice in the analysis and interpretation of quantitative data.

The message is that NHST has impeded progress in psychology and the social sciences in general, by imposing a dichotomous decision ritual where an estimation of an effect size (with a confidence interval) would, in the vast majority of cases, be more appropriate and informative. [ID237]

Visual and art-based approaches

There has been a growing interest in the use of visual and art-based approaches in the Social Sciences, particularly in relation to qualitative research. These approaches comprise a vast array of different types of methods and data which include photographs, film, video, drawings, sketches, graphical representations, knitting and models created by a range of creative media. These data, and corresponding methods, may be used in conjunction with more traditional methods, or may stand alone. Responses identified drawing, art-inspired methods and visual and material methods.

Visual and art-based approaches were identified as particularly important when working with people with communication problems and in exploring 'intangibles' such as emotions, feeling and concepts that are hard to articulate or poorly understood. It was noted that social scientists would benefit from working collaboratively alongside researchers and practitioners in creative industries to develop such methods. The need to critically explore the utility of such methods and approaches was identified; several responses noted that the claims made for visual and arts-based approaches have not been robustly assessed and key questions for a research agenda were identified. These included: a focus on the participatory claims of such methods; an exploration of how social scientists

can engage effectively with the arts and artists; the impact of these approaches on policy and practice; and, the ethical implications generated. One response noted:

While these questions are beginning to be asked in individual disciplines, what is needed is an opportunity for these disciplines to come together in a focused way in order to share insights and develop the theory and methodology underpinning these methods and research practices [ID 1005]

Another response noted that visual methods should form part of mixed methods research and that visual approaches should not be restricted to qualitative paradigms.

We need to relate visual methods and their application to other data collection techniques, methods and methodologies. There is a need to ensure that assumptions about epistemological fit are not limiting the field, while ensuring that there is appropriate codification of use against core methodological debates such as ethics, validity, reliability and rigour. There is a need for methodological examination of the field to open up arguments around visual data and prevent a restriction of visual approaches to qualitative paradigms. [ID 552]

Multi-modal methods
Several responses argued for the need to develop 'multi-modal' approaches, in which conventional methods (such as interviews or observation) are integrated with analysis of non-verbal communication or other forms of data. Visual, sensory and arts-inspired methods (discussed above) were also identified as being appropriate for use in conjunction with conventional methods in a multi-modal approach.   One response identified the importance of understanding non-verbal communication in conversation analysis (CA) in order to develop understanding of how gesture, gaze, and body deployment etc. are implicated in human interaction:

There is already, of course, a great deal of research on NVC but it uses ethnographic or experimental methodologies and does not involve a sequential analysis of action in the context of ongoing talk. Compared with the moment-by-moment fine-grained analysis of CA, these other approaches are very broad brush and attempts to use insights about NVC derived from other methodological approaches have not transferred well into conversation analytic studies. Given, especially, the increasing growth of CA as the method of choice for analysing co-present institutionally-based interaction it is becoming increasingly apparent to some of us working in this area that we lack sufficient understanding of the relationship between body deployment and talk-in-interaction. [ID 996]

Other topics
Three areas were identified which did not fit within any of the main headings set out above. One response identified the need for methodological development in relation to psycho- social approaches to research. This draws on both psychology and sociology and specifically psychoanalysis or trans-individual affect theory. It is viewed as important for topics which evade the conscious intentional awareness of individuals.

Another response identified the need for further research in the emerging and developing field of 'non-representational' methods.   This approach is drawn from cultural geography and focuses on describing 'mundane everyday practices that shape the conduct of human beings towards others and themselves in particular sites' rather than on representation and meaning (Thrift, 1997: 142). This approach was identified by the response as an emerging field of methodological investigation raising key questions in relation to the conceptualisation, practice, and teaching of more performative understandings of method.

A range of developments to social network analysis (SNA) drawing on mixed methods approaches were identified in responses. It was noted that, while quantitative methods of SNA are well developed and robust, there is scope for the integration of statistical approaches to SNA with qualitative approaches, including ethnography and qualitative interviews. Just one respondent noted that another approach to SNA being developed is dynamic social network analysis which explores how networks develop over time, including analysis of appropriate metrics like between-ness, centrality and degrees. Further development to this approach was viewed as appropriate. The importance of developmental work to identify ways of capturing individual perspectives on network position, and in particular, how actors come to occupy positions in a social network was noted. It was argued that devising a test of an individual's perspective on network positions and the opportunities this provides would enable analysts to have greater insights into the processes of people adopting strategic network positions. It is expected that such tools would have qualitative and quantitative applications.

4.   Discussion

The National Centre for Research Methods (NCRM) was established in 2004 in response to widespread concern at the time that UK social science lacked a coherent strategy to maintain its position at the international cutting edge of research methodology. While 'pockets of excellence' in specific areas were clearly evident, the broader picture was one of fragility. There was no appropriate infrastructure in place to promote and sustain critical mass in core areas, while retaining the flexibility to respond to new and emerging methodological challenges and opportunities as they emerged. Additionally, a pressing need was identified at this time to foster greater integration of methodological innovation with ESRC's broader strategy to enhance the capacity of the UK social science community to deliver high quality research across the methodological spectrum, within strategically important substantive areas.

Because it is not possible to fund worthwhile research in every potentially important area, NCRM undertakes periodic assessments and consultations of the social science community to determine areas of strategic priority. There are a number of different ways in which strategic research priorities might be assessed, none of which is completely free of limitations. The approach adopted in this report, as in previous assessments, has been to elicit the views of key stakeholders in UK social science via an online questionnaire. The methodological areas identified as strategic priorities in this way are, therefore, reflective of the views of those who are probably best placed to judge what the key methodological challenges are at this point in time and how they are likely to evolve in the sort to medium term.

The most frequent response to the consultation related to research into the use of **digital devices and mobile technologies** for quantitative, qualitative and mixed methods data collection. While the 2009 consultation received a number of submissions in this area, the substantial increase in suggestions in this area was perhaps the most notable change in the findings of the two reports. Given their rapid and pervasive entry into diverse areas of everyday life, it is perhaps unsurprising that smart digital devices are seen as key technologies for capturing new as well as traditional forms of social science data in the years ahead.

Participatory approaches, where participants are collaboratively involved in some or all parts of the research process, were identified as an important area of methodological research development. The challenge is to manage the tension between participation (and findings which are meaningful to participants and their communities and impact on them in useful ways) and producing robust and credible academic research.

Survey research has featured prominently in all previous NCRM methodological research needs assessments and the current one was no exception. Respondents identified needs for a range of **methods for assessing and enhancing survey data quality.** Key areas under this heading included the need to develop a better understanding of the mechanisms underpinning nonresponse, how response rate is related to nonresponse bias, and how different forms of measurement error are connected to one another, to nonresponse and to other sources of survey error.

Narrative methods for the analysis of various forms of textual data were a prominent feature of the 2009 consultation and featured again in 2014, this time with an emphasis on the need to develop methods for integrating different narrative approaches. Methods for the **analysis of longitudinal data**, both quantitative and qualitative, was another area which has featured in the current as well as both of the previous NCRM research needs assessments. This time, however, there was greater emphasis on methods for the analysis of comparative longitudinal data and for non-survey data with longitudinal structures. Many respondents noted the need for analysis methods to keep pace with ESRC's substantial investment in longitudinal data resources.

'Big data' and other forms of online digital data were, perhaps unsurprisingly given their recent prominence, mentioned by many respondents to the 2014 consultation. Analysis methods, both quantitative and qualitative, for social media and other online platforms were frequently identified, as were ethical guidelines for research practice in this emerging area. Many respondents noted the need for methods in this area which can handle data in 'real-time' as well as vastly greater capacities of volume. **Administrative data and data linkage** and **bio-social data analysis** were both identified in the 2009 and 2014 consultations. In the case of administrative data, it was particularly noted that further development was needed to better integrate estimates of measurement and linkage error into substantive analyses, while for bio-social data a focus on analytical rather than data collection methods is required in order to realise their transformative potential.

Small Area Estimation (SAE) and **Bayesian Data Analysis (BDA)** were new areas identified in the 2014 consultation. Although SAE now has quite a longstanding tradition, a number of respondents noted the need for development of improved methods of validity assessment for estimates and for integration between regression-based and microsimulation approaches. BDA was argued to be a more satisfactory theoretical framework for many quantitative social scientists, as well as providing more illuminating model parameters in many applied settings such as in non-linear modelling. Others proposed BDA as a potentially useful antidote to the well-known limitations of Null Hypothesis Significance Testing.

Three relatively longstanding areas of predominantly qualitative research were identified as in need of further development. **Ethnographic approaches**, in particular, have a very long heritage. However, respondents argued for a need to develop its more recent 'sensory', 'linguistic', and 'critical' forms. Likewise, **visual and art-based approaches** and **multi-modal methods** have both been identified in previous consultations, though with somewhat different foci and emphases. In the case of visual and art-based approaches, respondents argued for the need to develop methods for exploring and describing emotions and feelings which are difficult to articulate, particularly for those with various kinds of communication difficulties. For multi-modal methods, a case was advanced for the need to integrate 'conventional' methods such as interviewing and participant observation with the analysis of non-verbal communication.

Experimental and observational methods for policy evaluation have been consistently noted as being of strategic research priority in the 2006 and 2009 assessments and again in 2014. Respondents to this consultation emphasised the need to develop analysis methods for intervention designs which are implemented in more social contexts and which therefore require different approaches to the treatment of measurement error in experimental outcomes and to non-compliance in more complex treatment allocations. Respondents also expressed the view that

mixed-methodological approaches need to be better integrated into various forms of policy analysis and research synthesis.

It is important to recognise that the findings set out in this report are based on the *perceptions* of those individuals and groups who were willing and able to take the time to submit responses to the online consultation during the time that it was open (November 2014). The identified areas of research need that emerge from this data cannot, therefore, be viewed as either exhaustive in coverage or definitive in scope. Nonetheless, a large volume of responses was received to this consultation, representing researchers and research groups across all sectors and career stages and from all major academic disciplines. We are confident therefore that, while our findings may omit some important matters of nuance and detail in places, the broad pattern is reflective of the views of the UK social science research community.

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Appendix: Methodological Research Needs Questionnaire 2014

Personal

Q1   **Please provide your name and
       affiliation in the text boxes below
       (You may leave this blank if you
       would prefer your contribution to be
       anonymous)**

Q1a   **Name**

Q1b   **Affiliation**

Q2   **Please select the sector in which you
       are currently employed**
       *(drop down menu)

       Academic sector
       Central Government
       Private sector
       Local government/ health or social care services
       Voluntary/ not for profit sector

       Other:

Q3   **What is your current position?**
       * (drop down menu)

       Other:

Q4   **Are you based in the United
       Kingdom?**
       * (drop down menu)

       Yes
       No

Q4a   **Please tell us which country you are
       from**

Research Interests

Q5   **Have you ever been the Principal
       Investigator of an ESRC award?**
       * (drop down menu)

       Yes
       No

Q5a   **Is your award still current?**
       * (drop down menu)

       Yes
       No

Q5b   **In which year did your most recent
       award end?**

Q6   **In which of these disciplinary areas
       does your research mainly fall?**

       ☐ Area Studies

       ☐ Demography

       ☐ Economic and Social History

       ☐ Economics

       ☐ Education

       ☐ Environmental Planning

       ☐ Human Geography

       ☐ Linguistics

       ☐ Management and Business Studies

- ☐ Political Science and International Studies
- ☐ Psychology
- ☐ Social Anthropology
- ☐ Social Policy
- ☐ Social Work
- ☐ Socio-Legal Studies
- ☐ Sociology
- ☐ Science and Technology Studies
- ☐ Statistics, Methods and Computing
- ☐ Other

Proposed Research Method

Q7a   **First, please identify whether the methodological research is primarily quantitative, primarily qualitative, or focuses primarily on the integration, or mixing of different methodological approaches**

- ☐ Primarily Quantitative
- ☐ Primarily Qualitative
- ☐ Mixed/Multi Methods

Other ☐

Quantitative Level 1

Q7a1 **Now, please indicate whether the methodological research area relates primarily to collecting, accessing, linking and editing data, or whether it relates primarily to analysing and presenting data. If the area you wish to propose involves both of these elements, you should choose option 3**

- ☐ 1. Methods for collecting, accessing, linking and editing data
- ☐ 2. Methods for analyzing and presenting data
- ☐ 3. Methods for collecting, accessing, linking and editing data **and** for analyzing and presenting data

Other ☐

Quantitative Level 1: 1. Methods for collecting, accessing, linking and editing data

Q7a2   **Now, please select from the list below the headings which describe the methodological area you wish to propose. These options are not intended to be mutually exclusive, you may choose as many options as you think apply**

- ☐ Sampling and power calculation
- ☐ Response recruitment
- ☐ Nonresponse and non-compliance
- ☐ Survey mode
- ☐ Interviewers and interviewing
- ☐ Questionnaire design
- ☐ Scale construction and evaluation
- ☐ Questionnaire translation
- ☐ Cross-national data collection
- ☐ Time-diaries

- ☐ Collecting quantitative data using smart-phones and mobile devices
- ☐ Detecting and correcting measurement error
- ☐ Data disclosure control
- ☐ Assessing measurement equivalence
- ☐ Experimental designs
- ☐ Quasi-experimental designs
- ☐ Collecting social media data and other online data
- ☐ Collection of biological data
- ☐ Record-level administrative and transactional data
- ☐ Data linkage
- ☐ Data fusion

Other [＿＿＿＿]

Quantitative Level 1: 2. Methods for analyzing and presenting data

Q7a3　**Now, please select from the list below, the headings which describe the methodological area you wish to propose. These options are not intended to be mutually exclusive, you may choose as many options as you think apply**

- ☐ Regression methods (linear and non-linear)
- ☐ Contingency tables and loglinear models
- ☐ Latent variables and Structural Equation Modelling
- ☐ Multi-level modeling
- ☐ Event history analysis
- ☐ Time-series analysis
- ☐ Spatial data analysis
- ☐ Methods for causal inference
- ☐ Methods for repeated measures (panel data)
- ☐ Parametric and non-parametric variance estimation
- ☐ Instrumental variables
- ☐ Bayesian data analysis
- ☐ Small area estimation
- ☐ Methods for analysis of social networks
- ☐ Methods for analysis of bio-social data
- ☐ Methods for analysis of social media data
- ☐ Micro-simulation and Agent-based modeling
- ☐ Statistical simulation methods
- ☐ Data visualization
- ☐ Missing data methods
- ☐ Estimation methods

Other [＿＿＿＿]

Quantitative Level 1: 3. Methods for collecting, accessing, linking and editing data <u>and</u> for analyzing and

presenting data

Q7a4 **Now, please select from the list below, the headings which describe the methodological area you wish to propose. You will first be presented with options which relate to collecting, accessing, linking and editing data followed by a list of options which relate to analysing and presenting data. These options are not intended to be mutually exclusive, you may choose as many options as you think apply.**

☐ Sampling and power calculation

☐ Response recruitment

☐ Nonresponse and non-compliance

☐ Survey mode

☐ Interviewers and interviewing

☐ Questionnaire design

☐ Scale construction and evaluation

☐ Questionnaire translation

☐ Cross-national data collection

☐ Time-diaries

☐ Collecting quantitative data using smart-phones and mobile devices

☐ Detecting and correcting measurement error

☐ Data disclosure control

☐ Assessing measurement equivalence

☐ Experimental designs

☐ Quasi-experimental designs

☐ Collecting social media data and other online data

☐ Collection of biological data

☐ record-level administrative data

☐ Data linkage

☐ Data fusion

Other [   ]

Q7a5

☐ Regression methods (linear and non-linear)

☐ Contingency tables and loglinear models

☐ Latent variables and Structural Equation Modelling

☐ Multi-level modeling

☐ Event history analysis

☐ Time-series analysis

☐ Spatial data analysis

☐ Methods for causal inference

☐ Methods for repeated measures (panel data)

☐ Parametric and non-parametric variance estimation

☐ Instrumental variables

☐ Bayesian data analysis

☐ Small area estimation

☐ Methods for analysis of social networks

☐ Methods for analysis of bio-social data

☐ Methods for analysis of social media data

☐ Micro-simulation and Agent-based modeling

☐ Statistical simulation methods

☐ Data visualization

☐ Missing data methods

☐ Estimation methods

Other [ ]

Qualitative Level 1

Q7b1 **Now, please indicate whether the methodological research area relates primarily to collecting, accessing, linking and editing data, or whether it relates primarily to analysing and presenting data.**

☐ Methods for data collection, access and preparation

☐ Methods for data analysis and presentation

Other [ ]

Qualitative Level 2. 1. Methods for data collection, access and preparation

Q7b2 **Now, please select from the list below the headings which describe the methodological area you wish to propose. These options are not intended to be mutually exclusive, you may choose as many options as you think apply**

☐ Diary Methods

☐ Multimodal Research

☐ Observation

☐ Online Data Collection

☐ Participant Recruitment

☐ Participatory Research

☐ Qualitative Interviewing

☐ Sampling/cases

☐ Secondary Research

☐ Visual Methods

Other [ ]

Qualitative Level 2. 2. Methods for data analysis and presentation

Q7b3 **Now, please select from the list below the headings which describe the methodological area you wish to propose. These options are not intended to be mutually exclusive, you may choose as many options as you think apply**

☐ Actor Network Theory

☐ Analysis of Composite Data

☐ Attributional Analysis

☐ Biographical Methods/Oral History

☐ Content Analysis

- ☐ Conversation Analysis
- ☐ Corpus Analysis
- ☐ Discourse Analysis
- ☐ Documentary Analysis
- ☐ Ethnography
- ☐ Framework Analysis
- ☐ Grounded Theory
- ☐ Interaction Analysis
- ☐ Multimodal Analysis
- ☐ Narrative Methods
- ☐ Phenomenology
- ☐ Qualitative Comparative Analysis
- ☐ Qualitative Data Coding
- ☐ Qualitative Longitudinal Analysis
- ☐ Secondary Analysis
- ☐ Textual Analysis
- ☐ Thematic Analysis
- ☐ Visual Methods

Other ☐

Mixed/Multi Methods Level 1

Q7b4   **Now, please indicate whether the methodological research area relates primarily to collecting, accessing, linking and editing data, or whether it relates primarily to analysing and presenting data.**

- ☐ Methods for data collection, access and combining data
- ☐ Methods for mixed/multi methods data analysis and presentation

Other ☐

Mixed/Multi Methods Level 2. 1. Methods for data collection, access and combining data

Q7b5   **Now, please select from the list below the headings which describe the methodological area you wish to propose. These options are not intended to be mutually exclusive, you may choose as many options as you think apply**

- ☐ Sampling
- ☐ Biometric Data Collection
- ☐ Delphi Technique
- ☐ Diary Methods
- ☐ Multimodal Research
- ☐ Observation
- ☐ Online Data Collection
- ☐ Participant Recruitment
- ☐ Qualitative Interviewing
- ☐ Research Design

☐ Sampling

☐ Secondary Research

☐ Survey and Questionnaire Design

Other ☐

Mixed/Multi Methods Level 2. 2. Methods for mixed/multi methods data analysis and presentation

Q7b6 **Now, please select from the list below the headings which describe the methodological area you wish to propose. These options are not intended to be mutually exclusive, you may choose as many options as you think apply**

☐ Combining Qualitative and Quantitative Approaches

☐ Longitudinal Analysis

☐ Secondary Analysis

☐ Social Network Analysis

Other ☐

Open-Ended Questions

Q8a **Now, please type into the box below a short title or description of the methodological area you wish to propose**

Q8b **In the box below, please provide a more detailed description of the methodological area you with to propose**

Q8c **Please say why you believe that methodological research is needed in this area**

Q8d **Please provide details of any existing research initiatives in this area that you are aware of, both in the UK and internationally**

Q8e **If the methodological research that you are proposing will be relevant, or add value to specific existing (ESRC and non-ESRC funded) data resources, please provide details in the box below. Your answer should not simply name existing data sets but should explain how the proposed research would be relevant and/or add value**

Next round

Q9 **Would you like to tell us about**   If 'yes' Questionnaire returns to Q7a 'Proposed Research Method'

another area of research that you would like to propose as being of national strategic need