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Building Research Capacity

Editorial

The Research Capacity Building Network, as based at Cardiff University, ceased its work in April earlier this year. The team at Cardiff would like to thank everyone who has contributed and participated in the RCBN's activities over the last four years. Hundreds of educational researchers have been involved at some point and in some capacity during that time.

During the summer we have had time to reflect on our activities and in this issue of *Building* Research Capacity we have provided a summary account of our work during that time (p.1).

Although the RCBN in Cardiff is no longer operational the ESRC Teaching and Learning Research Programme (TLRP) are continuing to develop capacity in teaching and learning research through a second phase of activities and work. This second phase is being led by Stephen Baron, Associate Director for Capacity Building in the TLRP. In this issue Stephen outlines the aims, objectives and approach of phase two of this important work (p.2).

Many of the training activities that the RCBN used to organise will now be provided by the ESRC's National Centre for Research Methods (NCRM), and on page 5 Rose Wiles of the NCRM provides a brief description of this new initiative.

In keeping with past issues we have two further articles that continue the theme of debating methodological and research issues. The first, by Stephen Gorard, questions the usefulness of regression in analysing quantitative data (p.7). Then we have a response by Liz Spencer and colleagues to previous discussions in Issue 8 of *Building* Research Capacity on developing a framework for assessing the quality of qualitative research (p.8).

Finally, we want to report that this is the final issue of *Building* Research Capacity in its current form. The publication will continue under the editorship of Chris Taylor and Gareth Rees and the auspices of the TLRP. But instead of focussing upon methodological debates and issues the publication will primarily report on the issue of building research capacity—what this means, how it can be achieved, what its limitations are and what challenges lie ahead for the education research community. We will continue to welcome submissions on this theme alongside reports and news of current initiatives and activities established to enhance the expertise of educational researchers.

Four years of the RCBN

Gareth Rees and Chris Taylor **Cardiff University**

The Teaching and Learning Research-Capacity Building Network (RCBN) was established to support the research-capacity building activities of the Projects within the Teaching and Learning Research Programme (TLRP) and to develop new capacity building initiatives with respect to both the TLRP and the wider educational research community.

The overall aim of the RCBN was to facilitate the further development of the UK capacity to conduct high-quality research on teaching and learning, with a view to strengthening the knowledge base for policies and practice aimed at enhancing learner attainments. More specifically, its initial objectives were specified in terms of a number of core elements:

- a review of the research resources available within the TLRP and beyond and identification of opportunities for adding value and collaboration;
- support for research capacity building activities and training within the TLRP;
- dissemination and training targeted at the wider research community (including active researchers in 'user'/ 'practitioner' communities).

In addition, the following particular priorities were identified:

- the development of skills in the design, conduct and management of quantitative studies, including experimental, quasi-experimental and survey techniques, capable of evaluating the effects of teaching and learning upon learners' attainment across various contexts;
- enhancing the theoretical and conceptual bases for such

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Journal of the ESRC Teaching and Learning Research Programme Research Capacity Building Network

TLRP's Phase 2 Research Capacities Building Strategy

Stephen Baron **ESRC Teaching and Learning Research Programme**
Associate Director for Capacity Building

Background

Building the capacities of educational communities to conduct high quality research across all phases of education has been an explicit goal of TLRP since its inception. Arguably 'capacities building' is a part of all research Projects and Programmes but in TLRP this has been both a more explicit expectation of funded Projects and the subject of focussed Programme level activities. In order to understand the current strategy it is important to trace something of the trajectory of TLRP's capacities building.

The roots of TLRP in the (often misguided) critiques of educational research by Hillage, Tooley, Hargreaves, Blackstone and others from the mid 1990s were consequential in setting a context for initial capacities building activities. These critiques privileged research claiming to show 'what works' in raising attainments in public examinations and standardised tests through the use of quantitative techniques, with the relationship between researchers and teachers conceptualised in the medical model of the development of techniques and therapies by scientists for subsequent use by clinicians. Unsurprisingly this generated a 'deficit' model of educational researchers as often focussing on the 'wrong' issues, lacking the technical skills necessary, and therefore not providing teachers with useful knowledge. It is interesting to note that the recent BERA Seminar *Education Research in the United States Today* with Sheri Ranis and Pamela Walters suggested that the United States had, concurrently, followed a similar path of critique and restructuring of educational research, enshrining the 'double blind experiment' as the only legitimate form of educational research in statute.

The Cardiff Trajectory

In 2001 TLRP started funding the Research Capacity Building Network (RCBN) at Cardiff University to address these issues. The journey of this Network from its commissioning based on a deficit model of educational research to current work on a 'social practices' model and the political economy of educational research is itself a major example of capacities building and provides a springboard for the new phase of TLRP capacities building. Given the political context its mounting of short courses in research techniques and web based provision of guidance to research resources could be read as fostering an orthodoxy in which many educational researchers would not find a niche. As the quality and diversity of RCBN's provision became more apparent this became less of an issue with the Network receiving very supportive feedback in the recent TLRP Annual Report round.

Concomitant with the perceived broadening of the short course provision the Cardiff team began to question the 'technical' model of capacities building with which they had been working. In an excellent paper to BERA Boyask, Rees and Taylor (2004) argued that the technical model, while necessary, was not sufficient for capacities building, focusing as it did of the development of skills through formal provision. Rather, they suggest, the primary contexts for research capacities building are the 'communities of practice' of which the researcher is a member. They quote Hodkinson (2004:13) 'new researchers learn how to do and judge research through engaging in the authentic practices of whichever research community they join'.

The Cardiff team reported, however, that the processes of such professional learning for educational researchers are not straightforward: entry to the profession from classroom teaching (or equivalent) does not give many new colleagues the engagement with the social science disciplines which the 2001 RAE found to be a key feature of high quality educational research; the precarious employment position of contract research staff militates against long term strategic learning; injunctions to develop a broad portfolio of skills sit uneasily with injunctions (often from the same sources) to specialise and, often, occupy one specific 'methodological silo'.

The Cardiff team concluded (2004:7) that the technical model:

> … is based on a conception of professional learning which is abstracted from the realities of the social contexts in which educational researchers actually find themselves. Moreover, its almost exclusive emphasis on the efficacy of formal modes of learning implies that it is addressing only one part of what is required.

The logic of four years' work by the Cardiff Network led them to seeing the necessity of a social practices model of capacities building to complement the skills based provision of the technical model.

Another Celtic Fringe

As the Cardiff team was moving from the technical model of capacities building to a social practices model a cognate development was taking place independently in Scotland. In 2002 the Scottish Higher Education Funding Council and the Scottish Executive announced the Applied Educational Research Scheme (AERS), a £2m fund, over five years to develop the capacities of Higher Education Institutions (HEIs) to conduct high quality research in schools. The four HEIs which were rated at 4 in the 2001 RAE immediately agreed on a collaborative bid to establish a national research capacities infrastructure (at the last minute this was reduced

to three HEIs as Glasgow decided to pursue an independent bid). The successful collaborative bid focussed on a social practices model of capacities building through establishing three Networks (Learners, Learning and Teaching; Schools Management and Governance; Schools and Social Capital). Each of these Networks had three schematically defined projects with well experienced researchers as Principal Investigators (PI). The capacities building strategy was that teams would be formed for each project ranging from the PI to people with little or no research experience and that capacities would be built through the joint conduct of the research project from the formulation of precise research questions through to the publication and dissemination of findings.

The technical needs of such capacities building was to be met by a fourth Network which would develop on-line research training modules and provide responsive mode short courses for the Networks. The modules were to take advantage of a Resource Definition File (RDF) website as developed by TLRP at Cambridge. Such technology enables the 'same' website to be tailored to the individual user through the registration of a user profile (e.g. the Amazon website which greets you with a list of what other people who bought the same book as you have also bought). The pedagogic potential of RDF is that material in common can be delivered in a manner which is sensitive to the intellectual and social context of the learner. In the case of AERS, the modules were conceptualised as a table of rows and columns. In the rows there is the technical content of research methods (broadly conceived) with three columns being the expansion and exemplification of the concepts and techniques from the literature relevant to the three Networks. Thus, seamlessly (hopefully), a member of the Social Capital Network would see the principles of operationalisation expanded and exemplified through an analysis of Putnam's work while a member of the Learners, Learning and Teaching Network, looking at the 'same' page, would see the same principles expanded and exemplified through an analysis of the ORACLE classroom research.

The National Centre for Research Methods

A further significant development in capacities building was the establishment by ESRC of the National Centre for Research Methods (NCRM) at the University of Southampton in 2004 for an initial five year period. NCRM has the remit of supporting and developing research methods across the disciplines in ESRC's portfolio and it has an explicit capacities building role. NCRM strategy is that there is the 'hub' at Southampton with, from April 2005, six nodes in different HEIs specializing in specific aspects of research methods. There is a significant presence of educational researchers in these nodes. Together with ESRC's Research Methods Programme (RMP) and the National Centre for e-Social Science NCRM represent sustained attention to issues of research methods across disciplines which has not been seen previously.

TLRP's Phase 2 Capacities Building Strategy

During 2004 the Steering Committee of TLRP considered the Programme's capacities building strategy for the period to December 2008 in the light of the above developments and agreed to the appointment of an Associate Director with this specific responsibility. In November 2004 the future strategy was agreed with an earmarked ESRC grant of £500k starting in April 2005. The Steering Committee confirmed the ongoing commitment of TLRP to enhancing the quality of educational research as informed by the social sciences with a particular commitment to the diversity of research perspectives and to authentic application. Key to this future strategy was the issue of the sustainability of capacities building activities once TLRP funding ceased, with the aim of trying to embed these activities in the ongoing communities of educational researchers. The strategy is to be realised through nine developments:

Trusting in NCRM

Liaison with NCRM and its Nodes: The advent of NCRM and its nodes offers educational research communities the opportunity to engage in capacities building activities alongside colleagues from different disciplines. Cross representation between the TLRP Steering Committee and the joint Advisory Board for RMP and NCRM is in place and the programme of short course provision will be circulated by means of a TLRP mailing list TLRPCapacity registration for which can be made via www.JISCMAIL.ac.uk The generic social science provision will replace the short course provision of the Cardiff RCBN.

Sustaining the Exchange of Specialist Information

Continuation of aspects of the RCBN at Cardiff: The award to the Cardiff RCBN ended in March 2005 but it has been agreed to continue with aspects of this work. The journal *Building* Research Capacity will continue with at least two issues per year under the Editorship of Dr. Taylor. The material on RCBN's provision since 2001 and the detailed evaluations of this will be archived in TLRP's D-Space repository as a resource to inform future capacities building activities. Other aspects of the Cardiff website (e.g. the databases of resources and the references to methodology books) will help the development by TLRP (possibly in conjunction with the learned societies) of a Virtual Research Environment.

Continuing Capacities Building Conferences: The Capacity Building Conference series will continue in order to maintain the links between individual TLRP Projects, TLRP capacities building activities and colleagues involved in cognate work elsewhere. It is anticipated that these will occur in February 2006-2008 and will focus increasingly on the strategic issues of sustainable capacities building in educational research communities.

Supporting Baseline Training in

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TLRP's Phase 2 Research Capacities Building Strategy

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Research Methods

Developing AERS-TLRP on-line modules: The AERS project in Scotland is committed to developing twelve Masters level modules the core of which (five 20 credit point modules plus one 40 credit point module) will constitute a 'Scottish Masters' in research methods to ESRC requirements. The other six modules both deepen and broaden the consideration of research methods issues. TLRP has agreed to co-fund this development in order to draw on a wider group of authors and to tailor the modules to a wider set of contexts than those of the three AERS Networks outlined above. This widening of the modules will occur in several ways. In addition to the expansion and exemplification of the technical content of the 'rows' in terms of the three AERS Networks there will be expansion and exemplification in terms of three key TLRP concerns: educational inequalities; learning outcomes; learning across the life-course. In order to move the development of research competences from the technical model towards a social practices model the RDF web architecture will be used to support different communities of practice in the learned societies to tailor the core training material (the rows) to their own concerns by developing dedicated exemplification and extension material (the columns). This is further discussed in 7) below. Once the on-line modules have been prototyped they will be made available on the internet on the 'shareware' principles that HEIs are free to use the material as they see fit (e.g. by developing assessment and student support structures, putting the modules through their own validation procedures in order to have their own M. Res or equivalent) with the expectation that the common pool of resources will be enhanced through, for example, the addition of another column of exemplification and expansion by members of the user community.

Personnel and Career Development

Developing policies and structures: The ears of the Directorate of TLRP have been vigorously bent on numerous occasions by, particularly, Contract Research Staff (CRS), about the way in which career and institutional structures militate against the systematic development of research capacities (both personal and institutional). The work of the Cardiff RCBN with CRS, centring on an annual working conference developed by an ongoing group of staff, will be continued. Particular emphasis will be given to developing the use codes of good practice in the employment of CRS such as the Concordat or the BERA Charter. A further group with analogous difficulties in the structure of the academic profession is newly appointed lecturing staff. Often recruited from a practice, rather than research, background such staff are often faced with a choice of teaching only contracts (with substantial implications for personal and institutional standing) and the traditional research and teaching contracts which many regard as the hallmark of British academic life (with competing and often double-binding demands on the individual). As with CRS TLRP will foster an ongoing group to organise an annual working conference to develop models of good practice by which to encourage HEIs to address the structural issues facing the 'new blood' of educational research communities.

Sharing High Level Expertise

Establishing TLRP Fellowships: As many have noted, following two decades of lingering crises in British higher education, educational research communities are significantly greying and balding with a looming crisis of succession. In order to foster the next generation of Principal Investigators TLRP is adopting the AERS model of 'Fellowships'. These non-stipendiary posts for one or two years will attach developing researchers to established researchers in TLRP (and hopefully elsewhere) by means of an individual learning plan in the skills of research leadership agreed between the Fellow, their home HEI and the mentor.

Embedding TLRP's Capacities Building Contribution

Developing networks in Learned Societies: Central to TLRP's commitment to embedding sustainable capacities building in communities of practice are the various learned societies concerned with educational research. TLRP will seek to work with the specialist networks of the learned societies in furthering and formalising their role as capacities building mechanisms. In particular TLRP will encourage such special interest groups to take ownership of versions of the on-line modules by developing extension and exemplification material pertinent to their area of interest.

Developing regional research training consortia: To complement the topic based focus of 6) above and to counter the centripetal and competitive tendencies of mechanisms such as the RAE and ESRC's Research Training recognition exercise TLRP will seek to foster regional research training consortia through which HEIs might share their expertise and express the solidarity of educational research communities. Based on the regions used by HEFCE plus Northern Ireland, Scotland and Wales this will seek to foster such collaborations particularly through the use of the on-line module and the Virtual Research Environment being developed by TLRP under a JISC grant.

Establishing an Advisory Committee: As well as the intrinsic value of an Advisory Committee, it is proposed to establish such a body for this sub-set of TLRP's activities in order to help build a consensus across the educational research communities about capacity building strategies and to provide a possible mechanism for sustaining capacity building activity post 2008. This Advisory Committee would, in particular, draw on representatives from learned societies and sectoral organisations with the intention of developing a sense of ownership of the activities – thus fostering sustainability post TLRP. Where associations were willing and able to

take new capacity building initiatives, TLRP would gradually withdraw and focus its resources elsewhere.

Conclusions

By its origins, its scale of funding and its remit it is clear that TLRP is not 'just another' Programme but one element in a critical new phase in the political economy of educational research. The capacities building strategy outlined above is a response to this changing context seeking to enhance the cohesion of educational research communities in bringing the rich inheritance of critical research perspectives to bear on the institutions and practices through which new generations of citizens are formed and reformed. Comment on, and offers of contributions to, this strategy are invited from the communities concerned.

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The ESRC National Centre for Research Methods

Rose Wiles

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The ESRC National Centre for Research Methods (NCRM) was established in April 2004 for an initial period of 5 years. This initiative forms one part of the ESRC's wider strategy aimed at strengthening the research methods capacity of the UK social science community. The Centre provides a focal point for research, training and capacity building activities, aimed at promoting a step change in the quality and range of methodological skills and techniques used by the UK social science community. The Methods Centre works closely with the ESRC Research Methods Programme and shares with this programme a joint Advisory Committee.

The key objectives of the Methods Centre include:

- to advance methodological understanding and practice
- to enhance the UK international profile in methodological excellence and to ensure that the UK is at the forefront of international developments in social research methodology
- to play a strategic role in the promotion of high quality research methodology that involves inter-agency initiatives, including but not limited to those funded by the ESRC
- to co-ordinate and to add value to the existing investments of the ESRC that are concerned to enhance the methodological sophistication and techniques and skills of current and future generations of social researchers

The Centre consists of a central coordinating Hub based at the University of Southampton in collaboration with a network of six Nodes across the UK. The Hub draws on the expertise of an interdisciplinary team with a wide range of methodological perspectives. Led by Chris Skinner (Social Statistics), the team includes Sue Heath (Sociology), Grainne Conole (Education), David Martin (Geography), Jackie Powell (Social Work), Rose Wiles (Principal Research Fellow, sociologist), Gabrielle Beissel-Durant (Senior Research Fellow, statistician) and Becky Clarke (Administrator). The six Nodes are based at: School of Geographical Sciences, University of Bristol (led by Kelvyn Jones); the School of Social Sciences, Cardiff University (led by Amanda Coffey); Department of Epidemiology and Public Health, Imperial College (led by Nicky Best); Social Science Research Unit, Institute of Education (led by David Gough); Centre for Applied Statistics, University of Lancaster/ Department of Statistics, Warwick (led by Brian Francis, and David Firth); and, University of Manchester / University of Leeds (led by Jennifer Mason).

The Centre's objectives are to be achieved by:

- A programme of research aimed at supporting methodological innovation
- A training and capacity building programme
- The provision of on-line resources

Research Programme

The Centre's research programme commenced with the commissioning of Nodes in April 2005. The research programme aims to stimulate imaginative new developments in methods and to be responsive to new needs and opportunities that arise. The research agenda will be discussed at the Centre Launch event on 21st June 2005 in Oxford (see www.ncrm.ac.uk for details).

The research programme is based upon three kinds of projects:

- longer-term Node-based projects: focusing on innovative methodological development within the context of substantive research problems and applications, with an emphasis on transferability to other disciplines and research fields. Each Node's remit is to conduct innovative research and to disseminate this through the Centre's training and capacity building programme (see below).
- short-term event-based projects: aimed at stimulating debate on

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new methodological challenges or reviewing developments within specific methodological fields. A call for these projects on a specific topic is made annually with two projects funded each year. The focus for projects in 2004-5 is comparative research. These projects are managed by the Hub.

- affiliated projects: other methodologically innovative research projects will be invited to affiliate to the Centre and to participate in its activities.

The six node based projects are as follows:

University of Bristol: Learning Environment for multilevel methodology and applications'

This Node focuses on the quantitative multilevel analysis of data with complex structure that mirrors substantive research questions. It aims to:

- develop existing multilevel modelling techniques
- apply these to substantive research questions
- use these data to further develop software

Cardiff University: 'Qualitative research methods in the social sciences: innovation, integration and impact'

In this Node, specific demonstrator projects will be conducted to explore and identify:

- how multiple modes of qualitative data can be used in combination to provide evidence and promote understanding
- the use of new technologies to record, display and communicate qualitative data to different audiences
- the critical development of participatory methods
- how the impact and understanding of qualitative enquiry can be enhanced in the public domain

Imperial College: 'Bayesian methods for combining multiple individual and aggregate data sources in observational studies'

This Node will develop a set of statistical frameworks for combining data from multiple sources. Its focus will be:

- The development of a methodology for quantifying and reducing various types of biases
- development of hierarchical related regression models
- prediction of small-area 'indicators' using multiple data sources, for use in the evaluation of social policies

Institute of Education: Methods for Research Synthesis (MRS) Programme

This Node will build on existing approaches to Methods of Research Synthesis to:

- develop a framework to integrate and further develop MRS that accommodates diverse types of information and diverse types of research
- encompass measures that increase the quantity and relevance of research synthesis
- develop review tools

University of Lancaster/Warwick: 'developing statistical methodology related to correlated and longitudinal data'

The focus of this Node is:

- the development of efficient and appropriate statistical models for complex social science data
- a concentration on substantive problems in social and developmental change and to address computational and statistical issues arising from the substantive problems
- developing efficient statistical computing algorithms to improve the efficiency of random effects modelling

University of Manchester/Leeds: 'Multi-dimensional methods for real lives research'

Specific projects on family resemblances, young people's relationships and community interactions will be conducted to explore and develop:

- pioneering research methods that reflect the multi-dimensionality of 'real lives'
- Qualitatively-driven research that spans the qualitative/quantitative divide
- Development of context sensitive and cross-contextual explanation

Links to each of the Nodes and further information about their work is available via the Centre website (www.ncrm.ac.uk). The first major opportunity for hearing about the results of the Node-based research programme is likely to be the Methods Festival in June 2006.

Training and Capacity Building Programme

The Centre's training and capacity building programme has two broad aims:

- upgrading the quality and range of the methodological skills-base across the general social science community and
- facilitating the diffusion of cutting-edge methodological expertise to a new generation of social scientists

Accordingly the Methods Centre provides two kinds of training:

1. *A programme of training and capacity building for the general social science community*. Much of this programme will develop out of the events associated with the short-term projects and the training activities of the longer-term Node-based projects. In addition, the Hub will commission training events each year in topic areas not covered by the Nodes. The training programme commenced in the 2004/5 academic year but will not be fully operational until the coming academic year.
2. *Methodological training directed at researchers at the start of their careers*. This programme will be targeted primarily at PhD students and post-doctoral researchers based at the Hub and Nodes. The Centre will run an annual summer school and various seminar series based at the Hub and Nodes.

Provision of Resources

The Methods Centre will also act as a general resource for the UK social

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science community, providing up-to-date information and on-line resources on a wide range of methodological issues. These include:

- A database holding information on a wide range of courses and training opportunities across the UK. The database can be searched using keywords and provides information on events from introductory to advanced levels.
- On-line access to training materials from NCRM-based courses and events
- On-line access to transcripts of NCRM seminars, presentations or events
- On-line access to NCRM commissioned reviews on methods (four reviews will be commissioned each year) and to NCRM working papers and reports
- Information on methods-related journals
- A quarterly on-line newsletter
- Links to other methods resources
- The development and organisation of resources targeted at those engaged in the teaching of social science methodology and to the supervision of research students.

Information on the Centre's activities, including the Centre newsletter, and access to its resources is available from: www.nrcm.ac.uk

Is regression the way forward?

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Regression as the way forward

Many of the suggestions I have heard for building the capacity of the UK social science community involve a greater use of multivariate statistical analysis. The new ESRC training guidelines mean that all new researchers should be able to conduct such an analysis, and their summer school is replete with courses on varieties of correlation and regression. Multivariate statistical analysis underpins one of the key objectives of the RCBN, and will be a component of the work of the National Research Methods Centre. Some disciplines, such as economics, and some fields, such as school effectiveness, are dominated by regression techniques. These techniques are useful, fascinating, and need to be clearly understood by a range of researchers, practitioners and policy-makers. However, like other techniques, they can give very misleading results and are, therefore, better used in combination with other methods. This brief article reminds readers of just one of the ways in which we can be misled.

Try this yourself

Take a spreadsheet package, such as Excel, and create a table of random numbers. This can be done by entering the function '=RAND()' into the first cell, and then copying and pasting it to make a table with as many rows as columns as you want. Note that whenever you amend the table in any way then the random numbers are selected all over again. Therefore, you can repeat the following steps as many times as you like with different sets of random numbers. Now, open one of these tables in a statistical package, such as SPSS. Imagine that your table has 20 rows each representing an individual's scores on 21 variables simulated by 21 columns. Next run a linear regression analysis with your 20 cases, using the first column to represent the 'dependent' (predicted) variable, and the other 20 columns to represent a set of 'independent' (predictor) variables.

With simple simultaneous entry of your predictor variables into the model (the default in SPSS), the resultant R-squared will always be 1.0 irrespective of the actual numbers involved. In standard reporting terms, this means that we will always be able to explain or predict all of the variation in our independent variable using our dependent variables – even though all of them are random and any relationship is, therefore, completely spurious. The same happens with a table of 40 rows and 41 columns, 100 rows and 101 columns, or of any similar shape and size. Of course, this peculiar result arises largely because there are as many independent variables as there are cases in the analysis. And this is why reputable texts emphasise that the number of cases in any study must outnumber the number of variables by an order of magnitude.

Now run the analysis again with 'backward' elimination of any redundant variables. It is possible to reduce the number of independent variables in your model without substantially reducing the R-square value. In other words, you now have a perfect prediction/explanation for the dependent variables using fewer variables than cases. And many of the variables retained will be listed in the output as 'significant' at the 0.05 level. If you are prepared for the R-square value to dip below 1.0 then the number of variables can be reduced dramatically. Starting with a table of 40 rows and 41 columns it is easily possible, in this way, to produce a model with an R-value of 0.5 or higher using only 10 or fewer variables for 40 cases. This R-value is higher than many of those that are published in journals, and that are allowed to affect policy or practice. Many of the variables will still be 'significant'. And the ratio of cases to variables is 4:1 or better, which is usually considered reasonably healthy.

Consumers of regression beware

Perhaps you will think of this the next time you are about to be impressed by the R-value presented in

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a regression report. Try squaring the R-value, and then look at the result in terms of the ratio of cases to the variables actually used in the analysis. This last is often hard to establish from traditional reports. Once an investigation has started, the number of cases will usually only *decrease* from then on. There will be non-response and dropout from the designed sample. Many cases will have missing values for some variables. When these are excluded 'listwise', the number of actual cases in the analysis can drop alarmingly. On the other hand, the number of variables involved often *increases* once the investigation is under way. The analysis could be run with one or more measures aggregated to different levels, or combined with other variables to create new ones. Categorical variables are often converted to a series of dummy variables for linear regression, with one new variable for each of the categories, (except one) in the original variable. A seven-point social class scale, for example, is implemented using six separate variables. The upshot is that even the analyst may be unclear on the actual ratio of cases to variables used.

I have assumed the use of linear regression here for clarity and familiarity, but the danger of spurious findings can not be overcome by using alternative forms of regression. Similar arguments apply to logistic regression, and to multi-level modelling. In fact, the more complex methods can make the situation worse, because they make it harder to establish how many cases (sampling units) there are. A good defence is, as always, to increase the number of cases and minimise the number of variables – and the problem of spurious patterns (the 'Bartlett effect') is, of course, even more likely when small-scale research is conducted in isolation. Another defence is to look at the same variables in another way, using a complementary method. This is one of the strengths of mixed methods work, wherein a tentative or theoretical result can be tested by a field trial and/or in-depth observation, for example. Heterodoxy has a lot to offer fields such as econometrics that rely heavily on regression techniques almost to exclusion of all else. A statistical result is only the start of an investigation, not its end. And the decision to proceed with that result is a matter of judgement and not of technique.

Quality in qualitative evaluation: a response by the authors of the framework

Liz Spencer, Jane Ritchie, Jane Lewis and Lucy Dillon

We were delighted to see the wide-ranging discussion of the framework in the May 2004 issue of *Building* Research Capacity. One of the broad intentions behind the work which led to the framework was to stimulate and contribute to the debate about the nature of quality in qualitative research particularly where it is used in evaluations. We have been glad to see this taken forward by the Network and by others.

We do not intend to respond to all the points made in the various articles but highlight here those where we think we can usefully add a comment or clarification.

We were glad that Ruth Boyask's summary of the framework emphasises our call for it to be applied flexibly and not prescriptively, and for professional expertise and judgement to be central to evaluation of quality. She implies however that we suggest that 'research underpinned by paradigms that fall outside of [the framework's] scope will be seen as lacking', and gives the example we use elsewhere of evaluations committed to participatory or emancipatory aims. We think this is a misunderstanding of our intention to scope the applicability of the framework, described in chapter 4 of our report. What we say there is that it would not be feasible to include all philosophical traditions within the scope of a single framework, and we list key assumptions that we see as within and outside the scope of the framework. We explain that we take a broad definition of evaluation but would not see the framework as being appropriate for evaluating studies which have 'participatory or emanicipatory aims, *at the expense of methodological rigour'* (p52, emphasis in original). In other words we are making no judgement on the contribution of such evaluations, nor that of other studies which fall outside the philosophical assumptions on which the framework is based. *We simply do not see our framework as appropriate for assessing their quality.*

Elizabeth Murphy and Robert Dingwall's article, which makes some very powerful points about the under-exploited role of observation, suggests that the level of abstraction in our framework is too high and that there should be more specification of the quality indicators. We do recognise that the framework is expressed at a fairly high level of abstraction but we think this was necessary given that it is intended to apply to a range of methods, approaches and contexts. It would have been impossible to spell out in more detail how quality judgements should be operationalised without becoming prescriptive – and we were strongly warned off a prescriptive approach by pretty much everyone we came into contact with in drawing up the framework, as well as by our own instincts! More specification would also have meant

more qualification and more noting of exceptions. We would certainly agree the framework is not something that could be used by people who do not have an understanding of and expertise in qualitative research, but the project did not allow for us to write yet another textbook on qualitative methods.

Saville Kushner makes some important points about how the independence of evaluators may be undermined by the political context of the commission. Harry Torrance's article highlights this too, albeit it in a different vein and apparently rooted in a highly confrontational model of the relationship between policy and evaluation. We certainly agree with their emphasis on the importance of independence. Although it is clearly intrinsic to quality, our brief was to design a framework by which the quality of *written outputs* of evaluations can be assessed and given this we think it would be difficult to include within it aspects of the relationship between commissioners and evaluators. We hope that the framework might help researchers and evaluators to enter into dialogue with commissioners about the importance of particular features of their methods and how these support the credibility and independence of their findings. But we should perhaps have noted explicitly that the political context of evaluations can compromise quality.

We would certainly agree with Kushner's emphasis on the ability of qualitative evaluation to expose multiple purposes and broader value frames than those of official objectives and targets. We have perhaps not addressed this as directly in our framework and the wider report as Kushner would have liked. However, we do discuss the role of qualitative research in evaluation in understanding the human context and experience of policies, capturing unintended consequences and generating new insights, helping to understand what counts as success or effectiveness and *'compar[ing] the assumptions of which policies are based with social experience'* (quoting Janet Finch). In the framework itself, we refer to whether the evaluation shows new insights / alternative ways of thinking (Question 1), has a clear basis of evaluative appraisal, discusses how evaluative judgements have been made, discusses divergence in appraisals and discusses unintended consequences (Q5), explores diversity of perspective and alternative positions (Q12), and conveys depth for example using contributors' terms, concepts and meanings (Q13).

Kushner emphasises that the framework is 'not a guide to qualitative evaluation practice', a point with which we would absolutely agree. It is not a handbook on how to conduct qualitative evaluations, but a discussion of how the quality of their written outputs might be assessed. He makes the broader point, echoed by others who have commented on the framework, that the framework focuses on qualitative research methods as they are applied to evaluation, rather than on evaluation itself and the particular challenges it raises. This is a very fair representation of the line we describe taking in the report, and it reflects an issue with which we wrestled long and hard. Chapter 3 of our report gives an overview of the debate about what is meant by evaluation and about the relationship between research and evaluation. We could have taken a narrow definition of evaluation and of how it relates to research, but we decided to follow Ian Shaw in adopting a wider definition and in recognising that there is considerable overlap between evaluation and research. This reflects our desire to make the framework widely applicable where this was feasible. But it also reflects the commissioning context of government, which uses qualitative research not only for programme evaluation and for process and impact studies, but also more generally for understanding the human context of policies. We accept that this approach will not please all in the evaluation community – but given the range of positions held this would have been a vainglorious objective!

Harry Torrance's article contains a number of inaccuracies and misreadings of our report. We find it hard to see how what he describes as our 'counsel of perfection' could be used to support poor quality studies which come up with the findings government wants. He suggests we draw heavily on health related studies in our literature review because this is the field with which we are most familiar. It is not. It reflects the fact, which we note in the report, that the debate about quality has been particularly prolific in the field of health research so that a literature search using keywords such as quality and validity will generate more references to health journals than other substantive areas. He also suggests that our work responds to the agenda of the sponsor and not that of other stakeholders. We find it hard to square this with the approach we took, which draws vastly more on the views and writing of academics and research practitioners than those of government commissioners, and we discuss in the report the way in which we extended and modified our original brief through engagement with these wider stakeholders.

The quality of qualitative research will be considered by several Nodes of the ESRC National Centre for Research Methods. In particular, the 'Methods for Research Synthesis' Node at the Institute of Education, London, will consider how qualitative research can have a greater role in syntheses of research, including systematic reviews. The Node at Cardiff University on the 'Innovation, Integration and Impact' of qualitative research will focus on improving the use of qualitative research among policy-makers and practitioners. And finally, the 'Real Life Methods' Node at the Universities of Manchester and Leeds will consider how qualitative methods can be enhanced through their combination with other methods.

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studies;
- the articulation/combination of qualitative approaches with quantitative studies;
- the greater utilisation of inter-disciplinary theories and methods;
- the transformation of research based knowledge through to its embodiment in practices relevant to enhancing learner attainment.

In attempting to fulfil these objectives, the methodological strategy adopted by the RCBN was to develop a systematic evidential base before planning the detailed content of research-capacity building activities. Accordingly, the first stage of the work was to undertake an extensive consultation exercise to identify priorities for research-capacity building and to generate a database of expertise from the TLRP and across the UK educational research community. The consultation included:
- seven regional 'round-table discussions' with representatives of all the Phase I and Phase II projects at the outset of the RCBN;
- semi-structured interviews with 24 key 'stakeholders' drawn from various constituencies of the education system;
- a postal questionnaire survey of all researchers within Phases I and II of the TLRP, subsequently extended to members of BERA and the Learning Skills Research Network (and a number of other educational researchers). A total of 520 completed questionnaires were returned. The response rate for TLRP researchers (the only group for which the population could reasonably be estimated) to this Skills Consultation Survey was some 80%.
- Semi-structured interviews with the project leaders of the Phase I and II projects (during 2002 and 2003) to obtain feed-back on the (by then) developing programme of research-capacity building activities;
- an e-mail survey of researchers within Phase III of the TLRP. Forty-two responses were received (a response rate of some 67%).

It is, of course, no secret that the Skills Consultation Survey generated controversy. A number of researchers both inside and outside the TLRP were critical, in particular, on the grounds that it marginalised 'qualitative' approaches to teaching and learning research. However, irrespective of the way in which the questionnaire was received in some quarters, it yielded important evidence which was fed into the design of research-capacity building activities.

The consultation exercise was supplemented by an analysis of the Education returns to the 2001 Research Assessment Exercise (RAE), based on the methodological approach attributed to each publication submitted, as recorded in the additional field of information appended to each output. In addition, the methodological approaches represented in four major journals for a single year were examined. These analyses were intended to 'triangulate' the views expressed by the respondents to the consultation exercise as to the nature of educational research and available research expertise by examining the actual use of methods in published outputs.

There was also a review of existing research resources. These included training courses, publications and software resources available directly from other organisations, typically through their web-sites. The results of this were made available on the RCBN web-site in a 'Research Resources Catalogue'.

RCBN Activities

The centrepiece of the RCBN's programme comprised the development and implementation of an extensive range of research-capacity building activities. These were designed on the basis of the evidence on available resources and the expressed needs of researchers obtained from the initial Consultation Exercise; as well as the objectives set for the RCBN in the project specification. They were aimed initially at TLRP researchers in the Phase I and Phase II Projects; and subsequently extended to those in Phase III Projects, as these were established. They were also made available to educational researchers (and others) outside of the TLRP where possible.

'Face-to-face' Events

A programme of workshops, seminars and conferences was organised around 11 themes, subsequently rationalised into six major priorities. These were:
- research design issues;
- the use of large-scale data sets;
- the use of quantitative analysis in teaching and learning research;
- the use of qualitative analysis in teaching and learning research;
- combining quantitative and qualitative methods;
- researching the impacts of interventions.

Within each theme, there was a mixture of events offered. Some were intended to introduce methodologies which were new to participants and were aimed primarily at facilitating the 'consumption' of research. Others were pitched at a more advanced level, with a view to enhancing the utilisation of methodological strategies in the participants' own research.

These 'face-to-face' events accounted for the bulk of expenditure and the best data on participation relate to them. However, it should not be forgotten that they constituted only one part of the RCBN's programme.

Total participation in different types of 'face-to-face' activity is summarised in Table 1. As can be seen, all such events attracted a total of some 900 participants, of whom 40% were members of TLRP Projects. This total participation is accounted for by some 570 individuals, of whom 35% were TLRP researchers. The frequency of participation is shown in Table 2; and it can be seen that members of the TLRP were more likely to attend more than one RCBN activity than

Table 1: Summary of Participation in 'Face-to-face' Activities

*Type of activity**	*No. of activities*	*No. of participants in total*	*TLRP participants*
Training workshops	23	256	84 (32.8%)
Seminar discussions	11	357	156 (43.7%)
Conferences	6	148	109 (73.6%)
Presentations/Seminars	12	Unknown	Unknown
Master class (with BERA)	4	120	Unknown
Total no. of activities	56	881	349 (39.6%)

Table 2: Frequency of Participation in 'Face-to-face' Events

Frequency of participation	*No. of individual participants**	*TLRP participants*
1	448	110
2	64	36
3	24	23
4	11	11
5	7	6
6	4	4
7	3	3
8	3	3
9	1	1
10	1	1

participants from outside the programme.

In terms of the characteristics of individual participants, the majority were from pre-1992 universities (almost 60%), which probably mirrors the distribution of research resources and activity. They were more likely to be relatively recent recruits to educational research (40% had been researchers for 7 years or less), especially where they participated in more than one event. Despite this, participants were more likely to be 40-years-old or older, presumably reflecting the well-known recruitment from professional practice into educational research. Nevertheless, two-thirds of participants had completed PhDs (whilst EdD qualifications were only sparsely represented).

It is, of course, very difficult to draw conclusions about the extent of participation from the educational research community more widely (given the indeterminacy of the population as a whole). It is possible to draw some conclusions, however, in respect of the TLRP. Hence, there were approximately 330 researchers involved in 39 TLRP Projects (as of September 2004, thus excluding Welsh and Northern Ireland Extension Projects, but including some Associated Projects which only became part of the TLRP during the final few months of the RCBN's operation). This indicates that more than 60% of potential TLRP participants took part in at least one event. Moreover, the majority of TLRP participants were drawn from Projects in Phases II and III, perhaps reflecting the establishment of the RCBN after the Phase I Networks were well into their work. Even so, only two TLRP Projects (one Scottish Extension and one Associated Project) appear to have had no involvement in RCBN events.

Clearly, there is a sharp divergence between these patterns of participation by TLRP researchers and the earlier findings on the rather low levels of willingness to undertake methodological training amongst educational researchers. This provides some grounds for optimism that the kind of intensive investment in research-capacity building made possible by the RCBN constitutes an effective strategy. However, it should be remembered that 110 TLRP participants took part in only one event. Moreover, there remain more general questions as to the impacts of participation in RCBN activities on the actual practices of TLRP (and other) researchers.

Assessing the Impacts of Research-Capacity Building

The reception of RCBN activities by researchers within the TLRP and outside has been generally favourable. Hence, immediate evaluations of 'face-to-face' events have overwhelmingly been positive (see the Evaluation Summaries on the RCBN web-site). For example, 82% of respondents to evaluation questionnaires reported that their personal objectives had been met completely or almost completely. 'Excellent' or 'Good' ratings for event organisation and the training facilitators were just under 90% (although ratings for the facilities provided at the training venues were rather lower, at between 65% and 70%). Similarly, evaluation interviews have yielded favourable responses to the whole range of RCBN provision (although, of course, not every respondent has been positive about all aspects).

It is important to be clear, however, about the terms in which these favourable reactions have been made. There is a tendency to emphasise relatively short-term benefits. Researchers stress the utility of the various training opportunities provided in addressing the immediate problems confronted by individuals or whole project teams. Numerous responses, for example, praised the RCBN for meeting the need for particular kinds of analytical skills or for creating opportunities to overcome researchers' isolated situation on their Project by networking with colleagues from across the TLRP or for helping Project leaders to shape their strategy for their own capacity building activities.

It is much more difficult to identify longer-term impacts on research practices. In part, of course, this reflects no more than the limits of the evaluation methodology

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adopted. However, there were also clear indications that the social organisation of educational research itself acted not only to constrain participation in research-capacity building activity, but also to limit the potential for significant changes in research practices in the future. For example, most respondents accounted for their often quite limited participation in RCBN activities simply in terms of the pressures on their time exerted by the exigencies of their work on their Project and, in some cases, the expectation that they would prioritise the latter (not least on the part of Project leaders). In this sort of context, it is not surprising that respondents tended to emphasise the greater value which they attached to learning through private study and, most critically, interaction with their colleagues, compared with the quite formal learning opportunities offered through RCBN provision. In this, they echoed the conclusions not only of general studies of professional learning, but also more specific analyses which have emphasised the role of 'enculturation' as a mechanism for building the 'know-how' of researchers in the natural sciences.

Patterns of participation in capacity building activities were also frequently related to the wider context of career trajectories. For many contract researchers, anxieties appeared to focus on precarious employment prospects, as well as concerns over the (limited) possibilities for contributing to the intellectual direction of projects and the proper acknowledgement of the intellectual contributions which are made, rather than on the development of research-capacity. Similarly, for established researchers, their immediate interests were primarily defined in terms of their success in doing research (completing projects, producing publications and so forth), rather than in making provision for effective professional learning for less experienced colleagues. Moreover, in institutional terms, it is clear that 'successful careers' are more often than not built on the basis of specialised and highly focused research expertise. This works counter to expending time and energy on the acquisition of a wide range of research knowledge and expertise. These tensions were again especially acute for 'contract researchers', who experience directly the contrasting pressures of, on the one hand, the 'official' promotion of the need for researchers to be flexible and to have a 'toolkit of technical skills' and, on the other, the reality of the demands within projects for specialist knowledge and technical skills.

What these responses emphasise, therefore, is the need to ensure that research-capacity building strategies acknowledge the complex social processes which shape the character of professional learning amongst educational researchers. There are clear limitations to a simplistic 'technical model' of research-capacity building, which seeks to abstract professional learning from the realities of the social contexts in which educational researchers actually find themselves. More specifically, the evaluation of the RCBN's activities indicate that an approach to capacity building which is conceived simply in terms of the enhancement and diversification of the technical skills and competences necessary to conduct empirical research faces problems which derive from the very character of the social organisation of educational research itself. Similarly, an exclusive emphasis on formal modes of learning in research-capacity building activities ignores the evidence on how professional learning is actually effected amongst educational (and other) researchers. The future development of research-capacity building needs to acknowledge these lessons learned from the experience of the RCBN.

We will continue to explore the future development of research-capacity building in future issues of this journal. If you wish to contribute to this discussion then please consider submitting an article for a future issue of *Building* Research Capacity. In particular we would welcome your experience and reflections on the work of the RCBN, and how the education research community can develop its expertise and capabilities further. Please send your ideas to Chris Taylor (TaylorCM@cardiff.ac.uk)

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