

Welcome to *Building* Research Capacity

Stephen Gorard and Chris Taylor

Welcome to the first issue of what we hope will become a regular publication. It is intended for readers interested in the ESRC Teaching and Learning Research Programme (TLRP), and in helping to build the capacity of the UK educational research community to conduct high quality relevant studies.

The TLRP has among its objectives to:

- Promote and extend multi-disciplinary and multi-sector research in teaching and learning;
- Enhance the system-wide capacity for research based practice in teaching and learning;
- Develop the capability for transforming the knowledge base relevant to learning into practices.

We summarise these objectives in the phrase 'Research Capacity Building' (RCB). The RCB Network based at the Cardiff University School of Social Sciences has been formed to help support the RCB activities of the existing 14 projects from Phases I and II of the TLRP, and to assist applicants to Phase III in forming the methods proposed in their bids (see our website for more on this – www.cf.ac.uk/socsci/capacity). Our activities include setting up training events, workshops, chat-rooms, and publications. We welcome views on ways to make these challenging, innovative and effective. All events will be free and expenses-paid for

researchers in the TLRP. Our activities are all also available to the wider educational research community in the UK (although these may sometimes involve small costs).

'*Building* Research Capacity' is intended to be part of that RCB process, keeping readers informed of relevant activities within the TLRP and beyond. The fact that this is our first issue is reflected in the contents. The first article is based on an introductory 'script' used by members of the RCB Network to help explain our purpose to other researchers in the TLRP. The second piece is an evaluation of a training course, on key concepts and processes in evidence-based practice, undertaken by one member of the Network. The third article is based on a 'poster' presentation at the second annual TLRP Conference in Birmingham, November 2001. It presents one approach to combining different methodological approaches – a key theme for capacity building – through a health promotion model for developing complex interventions. The fourth piece presents a summary of our current and recent RCB activities. We intend that the back page of each issue will regularly present a list of forthcoming training events and existing training resources from the wider research community.

Each issue will continue to publicise training events and resources. We would encourage readers to

email us with information on any resources that they are aware of, which we can then evaluate and publicise (taylorh1@cf.ac.uk). More importantly we would like readers to *send us articles* of their own. These should be relevant to RCB and between 1,000 and 2,000 words in length in order to open up debate. They will be published in future issues, subject to review by members of the Network. We are interested in short evaluations of training events, reviews of methods books, and especially in articles on themes such as combining approaches, researching for impact, interactive social science, complex project management, and the role of theory. We welcome debates and critiques about any methods, provided only that the commitment of the author(s) is to rigour, and their concern is to help in '*Building* Research Capacity'.

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Introduction to the ESRC TLRP Research Capacity Building Network

Stephen Gorard

The terms 'research capacity' and 'capacity-building' are used in a variety of ways and contexts, by researchers, policy-makers, and funders. The ESRC has an overall mission to develop research capacity, and in the social sciences this is often taken to mean the capacity to undertake large-scale complex studies which combine a variety of data sources and, of necessity therefore, have a significant 'quantitative' element. Capacity of this kind is seen as being relatively sparse, in comparison to other forms of expertise and experience, and unevenly distributed between institutions and disciplines. Therefore the ESRC are funding a variety of initiatives to improve the situation over the medium to long term:

- PhDs now require initial masters level research training, within which all funded students will learn how to 'use, model, and interpret multivariate statistical data'.
 - Masters courses are being funded for government researchers.
 - Studentships are being created specifically to deal with large surveys.
 - The range of ESRC training courses is being increased, funded places on the Essex summer schools are being expanded, and courses such as those at CASS in Surrey are being brokered.
 - Some doctoral funding is being allocated to research centres for quantitative approaches.
 - Work involving large and complex datasets is being encouraged.
- The Management Research Initiative has dedicated funding for capacity-building.
 - A National Co-ordinating Centre for quantitative design is being set up.
 - A new £4 million Research Methods Programme has been announced.

The TLRP Research Capacity-Building Network forms an important, but small, part of these initiatives. The purpose of the Network is to produce needs-directed training provision for all Programme members. It's as simple as that. It is all on a voluntary and career-development basis. This training will be free and expenses-paid, and much of the expenditure of the Network will therefore be on preparing and providing this training for individual project researchers. It will also be available to non-TLRP members on a cost basis.

Capacity-building is one of the objectives and part of the activities for all TLRP projects already. Our role is to support and encourage that work, giving the projects more time to concentrate on their other objectives. We are concerned to help individual researchers develop their awareness and use of any and all research approaches for their *future* research and careers. We would like all researchers to be able to 'consume' research evidence of many kinds, to consider combining different approaches in future projects, to combine theory and method, and to focus on the impact of their work throughout the project life-cycle. On the basis of the McIntyre and McIntyre (2001) report we suggest that the necessary skills are all likely to be already present within the Programme, but unevenly distributed. Capacity-building there-

fore involves sharing these skills. Our role is not to support the actual research of the projects (although we are happy to help if we can, and if requested). Nor is our role concerned with the skills and needs balance of the teams in each project. We are also not concerned to privilege any specific method or approach to research.

Our activities fall into two main groups - a skills and needs consultation exercise, and the ensuing provision of training. The former involves several approaches (and we welcome suggestions for alternatives and additions). We are looking at existing research literature on teaching and learning to summarise the research techniques in current use. We are interviewing stakeholders, such as research funders and users, to obtain their view of the likely needs for research skills in the immediate future. We are adapting an existing classification of research skills/types, and proposing a provisional template against which individuals can mark their existing skills and likely future needs. We are conducting a survey of all TLRP researchers, and intend following this with in-depth interviews, and correspondence as necessary, to obtain a picture of the existing Programme skills for use as potential training resources, and a list of the Programme requests for skills training and development.

We have already begun collecting information on existing training resources. Our intention is to collect, catalogue, evaluate and then broker existing resources. There is no point in us setting up courses, manuals or protocols where these already exist. Where they exist and are deemed of sufficient quality we will simply 'buy into' them. Where necessary (i.e. where there is a gap

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between reported needs and existing provision) we will supply new resources. In doing so we intend using a mixture of traditional and novel approaches. The activities of the Network are also likely to lead us into a consideration of wider issues relating to the recognition and reward of teaching and learning research. We are conducting in parallel what we term a 'meta-project', describing our work of RCB in sociology of science terms. Our final task will be to provide an evaluation of the Programme activities in terms of research capacity-building.

We have had some requests to fund researchers to attend one-off training events (in which case we have asked attendees to represent the Programme and return a standard evaluation to us), we have dealt interactively with some individual researchers who were seeking advice on technical issues, and have started preparing two substantial training events for the first half

of next year – one on complex project management, and one on interactive social science. (See pages 6-7.)

While relatively simple in the telling this work is, of course, a tremendously difficult and completely new undertaking. This leads us to the purpose of this introduction, and what others (both Programme researchers and those in the field more widely) can do to help. First, we would like to be in regular contact with each ESRC TLRP project, but we do not wish to bombard everyone with everything. Therefore we have asked each TLRP project to nominate a member of their research team to act as a Liaison Officer between the RCBN and each project and to take responsibility for co-ordinating RCB? The Liaison Officer will then be our first point of contact for many issues, on a cascade basis, and they will also ensure that RCB becomes a routine agenda item in all project meetings. Second, we want to ensure complete coverage in our initial skills

consultation. We therefore need up-to-date contact details for all Programme members (including many of the practitioner-researchers), and would like them to trust us with personal details of their research skills and needs. These details will be stored individually so that future training events can be targeted appropriately, although any further analysis will be presented at a Programme level only. Third, we hope that we will be allowed to record all of our interactions for the meta-project (and standard research guidelines will apply to these recordings). Fourth, we want all researchers to share their expertise. This might involve being asked to help as paid consultants in providing or preparing training. It might simply involve writing a short article for this RCB journal, or sending us batches of contacts/brochures on existing training that you come across. Fifth, and most generally, we want Programme members to tell us what they want from us.

Workshop evaluation

Introduction to Evidence Based Practice

Patrick White

This was a one and a half day course on evidence based practice aimed at "healthcare professionals and managers". It is run regularly and focuses on "formulating answerable questions; learning about essential evidence-based resources; devising and conducting literature searches; and critically appraising research papers". It comprises twelve different lectures and workshops which were extremely well-taught. Although a core group of presenters co-ordinated the course, there were a number of lectures by experts in particular areas. The lectures were particularly well presented and of a very high standard. The course covered introductions to randomised controlled trials (RCTs), meta-analyses and systematic reviews. Although the examples used were primarily from healthcare, all presentations and activities were accessible to someone coming from another area, and my presence as an 'educational researcher' was positively welcomed by both the programme co-ordinators and the health professionals attending the course.

**Institute of Child Health, Education Centre
Royal Liverpool Children's NHS Trust
18th-19th October 2001**

As an introduction to evidence-based practice I cannot recommend this course highly enough. It would not be suitable for those with existing expertise in the area but should be considered by any education or other social science researchers wishing to be introduced to the subject. I found it informative, rewarding and enjoyable and also felt that mixing with researchers and practitioners from a different field was a valuable experience, broadening my understanding of clinical and healthcare research and (especially) practitioners' dispositions towards it.

For more details about this workshop please contact the ESRC TLRP Research Capacity Building Network office at Cardiff. If you have been on any workshop or training activity please let us know what you thought about it. We could then publish your evaluation on our website or in our journal so that other researchers could see if the workshop or training activity would be of interest to them.

Research design for the rigorous evaluation of complex educational interventions: lessons from health services research

Laurence Moore

Background

In clinical medicine, the randomised controlled trial (RCT) is well established as the best way of identifying the relative impact of alternative interventions on predetermined outcomes. The salience of this research design is largely due to the random allocation of participants to the alternative treatments, such that any difference in outcomes between the groups is due either to chance, which can be quantified, or due to the treatment difference.

Within health promotion, however, the value of the RCT research design has been hotly disputed. Health promotion in schools is interested in using medical approaches within educational settings. Therefore it may provide lessons for the TLRP in which all projects involve some form of intervention, and most involve combining approaches. Interventions are most likely to be successful if they are based on sound theoretical concepts, and are complex and of sufficient intensity, reinforced at multiple levels and through multiple channels. While some good quality RCTs have been undertaken, these have tended to evaluate simple, naïve interventions, delivered in homeopathic doses, and have inevitably produced disappointing results. The corollary of this is that good quality, complex interventions exist but have generally not been rigorously evaluated. However, recent methodological developments have addressed problems encountered in the evaluation of complex interventions, and there is now the real prospect that high quality, complex interventions can be evaluated within a randomised controlled design.

What are the key challenges in applying RCTs to the evaluation of complex interventions and how can these challenges be overcome?

- *The intervention may be naïve, not based on established theory, and not fully developed*

There is no doubt that it is easier to conduct RCTs of simple interventions. However, there is little value in compromising the likely effectiveness of the intervention by simplifying it in order to make it more amenable to evaluation within a trial. Indeed, RCTs are expensive both in monetary terms, and more particularly in terms of their demands on research subjects and researchers. It is therefore morally dubious to conduct a trial until one is confident that the intervention is likely to be effective. The Medical Research Council published in 2000 a Framework for development and evaluation of RCTs for complex interventions to improve health (Campbell *et al.*, 2000). They recommended that prior to the conduct of a RCT to demonstrate the intervention's effectiveness, three earlier phases of investigation should have been completed (see Figure). The first phase would involve the initial design of the intervention based on current theoretical understanding, ensuring that the intervention was grounded in theory and an explicit interpretation of the causal mechanism that it intended to promulgate. The second phase would involve primarily qualitative methods in the formative evaluation of the intervention, using interviews, focus groups, observation and case studies to identify how the intervention is working, barriers and facilitators to

its implementation, and how it may be improved. In the next phase, the intervention is sufficiently well developed to be tested in a feasibility study, where it is implemented in full and tested for acceptability to both providers (health professionals, teachers etc.) and the target audience (patients, pupils etc.). The feasibility study is also an opportunity to test trial procedures, such as the definition of the alternative treatment, which may be usual care, control, or some alternative intervention; and to pilot and test outcome measures.

- *There may be variability in the delivery of the intervention*

Traditionally, RCTs require that the interventions being tested are standardised and uniformly delivered to all participants. This is particularly important in an efficacy trial, which seeks to identify the impact of the intervention when delivered in ideal circumstances. However, since health promotion and educational interventions are so dependent on the quality of delivery, the value of efficacy trials is more limited. For example, smoking education interventions have been found to work well in efficacy trials, when delivered by enthusiastic teachers with ample curriculum time, yet when implemented in the real world they have not been found to be effective (Nutbeam *et al.*, 1993). In an effectiveness trial, on the other hand, a pragmatic approach is taken, with the intervention delivered in the trial in the same (variable) way as would realistically be achieved in the real world.

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- *The effectiveness of the intervention may depend on external influences which cannot be controlled*

It is often argued that health promotion and educational interventions are so dependent on the context (environment, policy etc.) within which they are delivered, that RCTs are not suited to their evaluation. However, the RCT design actually has the advantage that the randomisation process ensures that systematic differences in external influences between groups do not occur.

In recognition of these issues of variable delivery and context, it is crucially important to conduct a comprehensive qualitative investigation within the trial, so that these variable factors can be monitored. Thus, if the intervention is not found to work, then the qualitative research may identify why this was the case, and if there is variation in the impact of the intervention, this may be related to variability in im-

plementation and / or context. Thus, the RCT design is supposed to ensure that an unbiased estimate of the average effect of the intervention is obtained, while the qualitative research provides information on the factors that support or attenuate this effect.

- *Randomising individuals within the same family, school or area to different treatment groups may not be feasible or desirable, since participants allocated to one group may receive part or all of the intervention allocated to the other group (contamination)*

It is often not possible to randomise individuals to different treatment groups. Furthermore, many interventions are anyway intended to have a group level effect, such as by changing peer norms within a whole school year. Therefore, in health promotion research, cluster randomised trials are now very common extensions of the RCT design, in which groups, communities or schools are used as the unit of randomisation. For example, schools are randomised to deliver the new intervention, while the

other schools do not. In this design, the need for detailed qualitative examination of variation so that some delivery and context is further underlined.

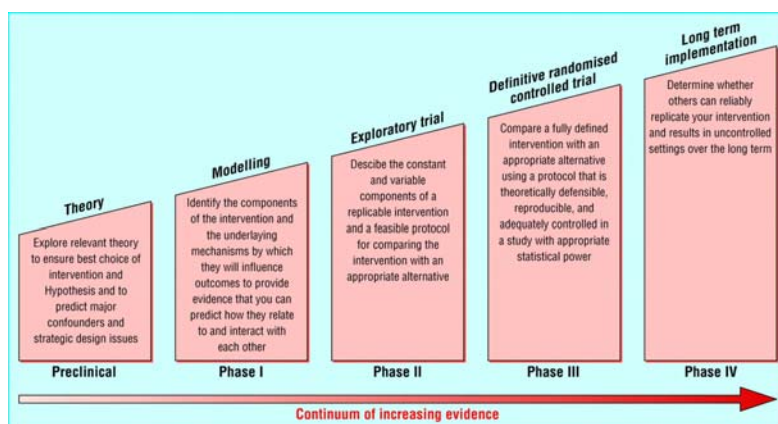
Summary

It is not easy to evaluate a complex health promotion or educational intervention using RCT designs. However, a framework has been developed within health services research that highlights the key challenges in evaluating complex interventions, and how they may be overcome. In particular, this framework highlights the importance of combining quantitative and qualitative methods to ensure that the intervention is well developed and tested prior to the conduct of an expensive trial, and that the trial, which may be a cluster randomised design, is a pragmatic one in which variations in delivery and context are allowed to occur and are fully documented. The author has been involved in school-based projects that have successfully adopted this framework in evaluations of emergency contraception education, peer-led smoking education, and the provision of fruit tuck shops.

References

- Campbell M, Fitzpatrick R, Haines A, *et al.* (2000) Framework for design and evaluation of complex interventions to improve health, *British Medical Journal* **321**:694-6. (See also www.mrc.ac.uk/complex_packages.html).
- Nutbeam D, Macaskill P, Smith C, *et al.* (1993) Evaluation of two school smoking programmes under normal classroom conditions, *British Medical Journal* **306**: 102-107.

Phases of RCTs of complex interventions: MRC April 2000



From Campbell M, Fitzpatrick R, Haines A, *et al.* (2000) with permission from the BMJ Publishing Group

Recent RCBN activities

Regional meetings

Throughout October and November we attempted to meet as many Teaching and Learning Research Programme members, from Phase I and Phase II, as possible. We held six regional meetings in the locations listed below. These regional meetings have proved successful, involving nearly 50 researchers from the Programme's networks and projects and in introducing our project and its main objectives.

University of Leeds (BERA Annual Conference)
Institute of Education, University of London
University of Manchester

University of Newcastle upon Tyne
University of Cambridge
University of Bristol

If you were unable to attend any of the regional meetings and would like more information about our project and its activities, please visit our website <www.cardiff.ac.uk/socsi/capacity> or alternatively feel free to contact any of us via email.

Communication strategy

We will be working with projects and individuals involved on the Teaching and Learning Programme. In order to develop efficient and effective communication with those projects and individuals we will operate two main channels of communication, one at the project-level and one at an individual level.

Project-level communication

Each project or network has been asked to nominate a research capacity liaison officer from within their research team to act as a first point of contact for the RCBN. Generally any news or information we wish to pass on to the project/network teams will come via this liaison officer. It is also envisaged that this person will take some responsibility for the capacity-building activities of their project/network. Similarly, to help us keep in close and regular contact with the projects each of our Executive Group members have been nominated to take responsibility for ensuring that we are communicating effectively with each research team. It is hoped that this will ensure we can keep abreast of developments, particularly of methodological and conceptual issues, that arise within each project. To find out who is the liaison officer for your project please go to the Contact Us page on our website.

Individual-level communication

Since our main concern is for the professional development of each member of the TRLP we strongly encourage everyone to contact our Research Capacity Building Network office in Cardiff as and whenever necessary and irrespective of whether they are a team leader or the capacity building liaison officer. This may be to obtain advice on any aspect of research or to request some form of training in a particular research skill. You can contact us by telephone, email or via our website, and we will be happy to follow up any request you may have.

Skills consultation exercise

We are currently engaged in a skills consultation exercise within the Teaching and Learning Research Programme to identify the type and form of skills training that may be required by Programme members for their research careers. This exercise is being undertaken in three main phases:

1. Stakeholder interviews

We have spoken to thirty stakeholders as representatives of key constituencies in educational research. These include central government, local government, the British Educational Research Association, the National Education Research Forum, OFSTED, the National Foundation for Educational Research, the ESRC, other funding agencies, the Teaching and Learning Research Programme, the General Teaching Council, and other national and international academic researchers. These have been extremely useful in determining a system-wide view of current and future research capacity in education. We will be publishing a full report of this shortly.

2. Skills consultation survey

Over 300 questionnaires have now been distributed to individual researchers currently working on the Teaching and Learning Research Programme. This survey will be used to identify the current capacity and distribution of research skills within the Programme and highlight the training needs of Programme members. Since the main task of the RCBN is to provide or broker research training it is essential that we get as complete a picture as possible of current knowledge in social science research skills. From this we will then be able to make informed decisions on the alloca-

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tion of training resources and in developing a profile of research skills expertise within the Programme. Therefore it is very important that every researcher in the TLRP completes a questionnaire. If you have not received a copy of the questionnaire and feel you should be included in this survey then please contact your project's research capacity building Liaison Officer or feel free to contact the RCBN office. We would also like as many researchers as possible from the wider education community to complete the questionnaire. We are currently negotiating with key organisations and agencies to obtain their co-operation. However, any individual or research group wishing to be included need only contact us for copies.

3. Follow-up interviews

Once we have received completed research skills questionnaires we will then be able to contact individual TLRP members to discuss their professional development and, in particular, their future research skills training needs. In the follow-up interview we will be able to discuss the survey responses and identify the type and form of training that may be required.

Training/Workshops

We are beginning to take suggestions for possible training courses or workshops. Most of the capacity-building activities that will be generated from the RCBN will be in three forms:

Responsive mode

Individuals may ask us to help with the cost of attending pre-existing training courses/workshops. This will be particularly useful for training activities that are relatively new to teaching and learning research. In return for meeting the costs of attending such courses we hope that attendees will be able to make a contribution to the rest of the TLRP as a result of their participation, either by cascading training or preparing an evaluation. The RCBN will also be able to assist with individual requests for help as we have the resources and the time to make enquiries for training needs or research assistance/guidance on behalf of TLRP members. We have already assisted with sampling issues, secondary data sources, SPSS syntax, hardware and computer software enquiries.

RCBN training/workshops

Where there are common training needs of many TLRP members we will endeavour to provide our own training workshops. Such workshops or training will be provided directly by the RCBN team, other recognised experts, or both.

TLRP projects/networks training

In some cases individual TLRP projects or networks will organise their own capacity-building activities. We can offer our resources (money and/or time) to help with such activities. In return it is hoped that these activities will be available to researchers from other TLRP projects.

Publications

The RCB Network has produced, and will continue to produce, a number of longer working papers on a variety of themes (and again we welcome contributions to this series). These are all available for download at our website. In addition the following publication has been produced to assist with the task of research capacity building:

Gorard, S. (2001) *Quantitative Methods in Educational Research: The role of numbers made easy*, London: Continuum

For more information on the resources available for research capacity building please visit our website. This is regularly updated with the latest news, training courses, methodological discussions and activities of the Research Capacity Building Network.

www.cardiff.ac.uk/socsi/capacity

Building Research Capacity

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Views expressed in this journal do not necessarily reflect those of the University, the Research Capacity Building Network, the Teaching and Learning Research Programme, nor the Economic and Social Research Council.

Forthcoming events

Three forthcoming workshops for Spring 2002 from the RCBN (further details can be found on our website):

- Combining Approaches, 24th January 2002, Team Leaders Conference, Mostyn Hotel (to be confirmed).
- Complex Project Management, dates and location to be confirmed.
- Researching For Impact, dates and location to be confirmed.

ESRC Teaching and Learning Research Programme Phase III Commissioning:

- January 2002 — Call for outline bids. We are available and responsive to requests for assistance from any potential applicants.
- April 2002 — Applicants to be short-listed. We will be working with all short-listed applicants in support of their bids.
- A statement of our ethical guidelines for the TLRP Phase III Commissioning is available from our website.

Other training events:

- **The Centre for Applied Social Surveys (CASS)**

CASS aims to strengthen skills in survey design and analysis within the UK social science research community. CASS offers short courses on survey methods ranging from 'Introducing Descriptive and Inferential Statistics' to 'Multiple Imputation in Practice.' Courses run from November 2001 to May 2002. For further information, please visit the CASS website at

www.socstats.soton.ac.uk/cass/courses.html

- **The Cathie Marsh Centre for Census and Survey Research (CCSR)**

CCSR offers a short course programme concerning quantitative data collection and analysis. Courses range from 'Surveys and Sampling' and 'Introduction to STATA' to 'Logistic Regression' and 'Multilevel Modelling.' The courses run until May 2002. For further information, visit the CCSR website at

<http://les1.man.ac.uk/ccsr/courses/shortsummary.htm>

- **CAQDAS (Computer-Assisted Qualitative Data Analysis) Networking Project**

CAQDAS Networking Project offers training courses concerning computer assistance in the analysis of qualitative data. Introductory training courses are available for QSR NVivo, QSR N5, QSR N4, NUD*IST, The Ethnograph, ATLAS.ti, WinMAX and CISAID. Courses run until February 2002. For further information, visit the CAQDAS website at

<http://caqdas.soc.surrey.ac.uk/courses.htm>

- **TRAMSS (Teaching Resources and Materials for Social Scientists)**

TRAMSS is a distance learning website where researchers can access new data sources and perform complex statistical analyses. It enables social scientists to utilise the latest statistical methods by downloading specially developed software and training materials from the Internet. For further information, visit the TRAMSS website at

<http://tramss.data-archive.ac.uk/>

For information about these and other training courses, and help with costs, please contact the Project Administrator Helen Taylor (contact details can be found below).

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