Developing protocols for systematic reviews in education: early experiences from EPPI centre review groups

Carole Torgerson\(^1\)  
Barbara Roberts\(^2\)  
James Thomas\(^3\)  
Alan Dyson\(^2\)  
Diana Elbourne\(^3\)

1. English Teaching Review Group, York  
2. Inclusive Education Review Group, Newcastle  

Abstract

In 2000, the DfEE funded the education stream of the EPPI Centre to facilitate the production and dissemination of systematic reviews of research evidence to inform policy and practice in education. In early 2001, the first review groups (RGs) were registered to take forward a programme of reviews in six areas of education. One of the first steps towards conducting a review is to produce a protocol for that review. In this paper, researchers from the EPPI Centre introduce the principles behind this review process, and representatives of two of these RGs describe how this is being implemented within their RGs. This is very much ‘work in progress’.

Introduction

“It should be self-evident that decisions on Government policy ought to be informed by sound evidence. Social science ought to be contributing a major part of that evidence base…. Too often in the past policy has not been informed by good research: a former Permanent Secretary once ruefully described the [old] DES as a knowledge-free zone”

David Blunkett, [then] Secretary of State for Education, England and Wales  
February 2000

Shortly after this speech, the Department for Education and Employment (DfEE) (now the Department for Education and Skills (DfES)) provided funding to establish the education stream of the Evidence for Policy and Practice Information Co-ordinating Centre (the EPPI Centre). The aim of the initiative is to facilitate the production and dissemination of systematic reviews of research evidence to inform policy, practice and scholarship in education. In early 2001, the first review groups (RGs) were registered to take forward a programme of reviews in six areas of education. One of the first steps towards conducting a systematic review is to produce a detailed protocol for that review so that the process and methods are open, transparent, up-dateable and potentially replicable by other reviewers. Given the nature of this conference in which many of these ideas about the need for systematic reviewing have already been discussed by other contributors, in this paper we will concentrate on some EPPI Centre-specific issues and progress. Following an introduction by researchers from the EPPI Centre, representatives of two of these RGs describe how this process is being implemented within their RGs. This is very much ‘work in progress’.

**EPPI Centre principles**

The EPPI Centre is based in the Social Science Research Unit (SSRU), within the Institute of Education (University of London). The SSRU has a wide-ranging research programme covering policy-relevant work in the broad areas of social welfare, health, health promotion/education, and education. This work includes primary research such as experimental evaluations of social interventions, as well as so-called secondary
research - systematic reviews including research synthesis. Previously, the SSRU systematic review methods concentrated on social welfare, health, and health promotion / education. The new focus within the EPPI Centre is to adapt this previous expertise in a range of methodologies within the area of systematic reviews to the field of education. The current focus is on schools, with children and older students between the ages of 0-19 years, with the emphasis on the ages of compulsory education. Further information is available on the website (http://eppi.ioe.ac.uk/).

Other systematic review organisations

The EPPI Centre is not alone in the wish to provide high-quality systematic reviews of research evidence to inform policy, practice and scholarship. For instance, the Cochrane Collaboration (http://www.cochrane.org/) has been leading the way in the field of health, and its sister organisation, the Campbell Collaboration (http://campbell.gse.upenn.edu/) is beginning a similar programme in fields as diverse as crime and justice and social welfare. The Campbell Collaboration is also interested in initiating work in the education arena.

EPPI Centre systematic reviews

Systematic reviews written as part of this initiative differ from traditional literature reviews in a number of ways. They are pieces of research in their own right using explicit and transparent methods and following a standard set of stages. This should enable them to be replicated and updated as well as aiding their accountability. The process is designed to facilitate updating at a later date – possibly by different authors - with all the data used to write the original review stored alongside the final report. These reviews address a wide range of review questions as well as having a particular emphasis on ‘user involvement’ (see below).

EPPI Centre review questions

EPPI Centre reviews aim to address many different types of questions. Hence the reviews will consider a variety of designs in the primary research which may be appropriate to address these different questions. The sorts of questions which the reviews may explore might include, for example, questions about implementation levels (what is happening?); about levels of need (what do people want?); about the effectiveness on different policies and practices for different ends (what ‘works’?); and about process and explanation (why does it/might it ‘work’?)

User involvement

It is a key component of the EPPI Centre philosophy that potential users of EPPI Centre reviews are involved at every stage of the research in order to ensure that the reviews are applicable to those who can make best use of them. The users of course include researchers. However, depending on the subjects of these reviews, the users (or stakeholders) could include parents, students, teachers and other school staff, governors, LEAs, policy makers….. They can be involved in the development of research strategies and setting priorities for research, the review protocols, the reviews, and their effective dissemination.

Funding arrangements

Literature reviews are, or should be, part of any research study. Systematic reviews are, however, a particular form of literature review and, like for any new method, the approach and relevant tools need to be learnt. In recognition of this, the DfES has provided some funding to support the EPPI Centre initiative. This funding is in two parts. The first part is directly to the EPPI Centre to support core staff and facilities. However, as the small number of EPPI Centre staff cannot conduct all the reviews personally, the second part of the funding is going to the people who will be carrying out this work - the Review Groups (RGs).

The EPPI Centre

The funding for the EPPI Centre is to allow the Centre to provide support to the RGs in the process of undertaking their reviews. This support comes in a number of ways. For instance, the EPPI Centre provides regular training in systematic review methods, backed up with appropriate tools and corresponding software (Figure 1). One example of this is the keywording strategy. All studies which are likely to form part of a review are given a series of keywords to describe their bibliographical details, their subject area and scope, and their methods. The procedures for this are given in an EPPI Centre publication, which is freely available
on the EPPI Centre website. The task of extracting data from individual studies and examining their relevance and quality in the context of a review is facilitated by guidelines which are supported by specially written software. The EPPI Centre also provides a programme of quality assurance, including internal and external peer refereeing of proposals for new RGs, for reviews protocols, and for the reviews themselves. In addition, all the reviews (as well as the underlying documentation and data) will be available electronically on the Research Evidence in Education Library – REEL (Figure 2), with different interfaces for various end-users as shown schematically in Figure 3.

The EPPI Centre also has a remit to conduct methodological research in the field of systematic reviewing. Although much work in this area has been published within the health setting3, there has been less of a focus in education. We are particularly interested in methods for reviewing and synthesising information from studies with different designs.

Review groups

The RGs will focus on specific areas of education, and 'pump-priming' funding is available for approximately four new RGs each year. The remit of the registered RGs is to produce at least one new review per year, and to keep existing reviews up to date. RGs are re-registered annually following the satisfactory peer refereeing of their annual reports and reviews.

The first waves of RGs was registered in early 2001. Their titles are Assessment and Learning Research; English Teaching; Gender and Education; Inclusive Education; and School Leadership. In addition, there is a RG in post-compulsory education which, as it falls outside the schools remit of the EPPI-Centre, has separate funding arrangements, but in all other respects is equivalent to sixth 'first wave' RG.

These six groups have been working very closely with the EPPI Centre not only working on their own reviews but also, in the process, helping to develop further the EPPI Centre principles used previously in the health and health promotion settings, and adapt them for use in education. The following sections demonstrate progress in the first few months of the life of two of these RGs - English Teaching and Inclusive Education.

English Teaching Review Group

This section describes some of the steps the English Teaching RG has taken over the last few months. The RG has its editorial base in the University of York. It includes a core review team as well as specialist advisors and practising teachers in such fields as English Teacher Education; Primary Education; Psychology - Dyslexia, Reading Disorders, Reading Interventions; Methodology; School Governance; Literacy; ICT; Second Language Learning; Pedagogy; Moving Image & Literacies; Literature and Critical Literacies.

The topic selected for this RG’s first systematic review is entitled: The Impact of Information and Communication Technology (ICT) on Literacy Learning in English, 5-16. The core Review Team found the initial stages of the review technically complex. Refining the research question involved not only limiting the scope of the review by developing inclusion criteria, but also defining the key terms of the review – ‘literacy’ (and ‘literacies’), ‘Information and Communication Technology’ and ‘English-speaking countries’ (to include English as a Second Language, but to exclude English as a Foreign Language)

To be included in the descriptive map as the first stage of the in depth review, the study had to have as its main focus ICT applications to literacy development; focus on literacy learning and teaching in schools and/or homes; be published in English, in the period 1990 – 2001; look at literacy and ICT in English-speaking countries; be a study whose participants/study population included children at ages 5-16; be a completed study; be either a systematic review, an intervention (outcome or process evaluation) study or an evaluated non-intervention. Therefore, a variety of study types were included reflecting the diversity of research in the field. Opinion pieces, non-systematic reviews and studies describing resources were excluded.

The criteria for the scope and setting of the study, and the study type, were stated in the peer-refereed protocol, which is openly available on the websites of both the EPPI Centre and the English Teaching RG (http://www.york.ac.uk/depts/educ/projs/EPPI).
The protocol was very much seen as a working document.

As it is based in York, the RG group was in a good position to collaborate with the NHS Centre for Reviews and Dissemination (CRD) to develop its strategies for the electronic searches for the review. An example of a search strategy on the bibliographic database PsychInfo is available on the website.

The RG is now retrieving the results of these and other searches (on ERIC, BEI, SSCI, C2-SPECTR, The Cochrane Library and two databases of ‘grey’ literature – SIGLE and Dissertation Abstracts), and examining the titles and abstracts against the inclusion criteria before deciding whether to order a copy of the full paper or report. These decisions are shared between RG members, with a proportion of the titles and abstracts scanned by two people to check for inter-rater reliability.

Interestingly, the RG has identified a substantial number of randomised controlled trials (RCTs) and other quasi-experimental designs that evaluate interventions in the field of ICT and literacy. These studies will help the group inform policy and practice questions that are about effectiveness. In contrast, the RG has also identified numerous studies using qualitative methods (case studies and process evaluations of interventions). These studies will help to inform broader questions about the impact of ICT on literacy, for example to illuminate how something works. In the spirit of collaborative research the RG will, in due course, forward a copy of the database of RCTs and quasi-experiments to the Campbell collaboration (C2 SPECTR).

The full review should be available on REEL and on the English RG website in the Summer of 2002.

The Inclusive Education Review Group

The editorial base of this RG is in the University of Newcastle, and at its core is the ESRC Teaching & Learning Programme network on ‘Understanding and Developing Inclusive Practices in Schools’ (L139251005). In creating the RG, however, the team had to consider how to engage diverse views, including those of users, in a technically-complex, time-consuming process. The core group has, therefore, been extended to include teachers and researchers from beyond the ESRC network – though this in its turn exacerbates the practical problems of cross-site communications.

For its first review, the RG chose to focus on an issue that was central to the ESRC network’s concerns - the organisational characteristics sustaining inclusive practices. Operationalising the definitions of ‘inclusive’ and of ‘organisational characteristics’ presented a major challenge. There was also a problem of delimitation: inclusive education is, arguably, no more nor less than a set of values which should permeate all of education, with the implication that a vast range of issues and research studies should fall within the RG’s scope. In addition, there were potential ideological conflicts arising from the diverse positions of members within the RG.

The RG faced these problems while developing the protocol for the review. There was no simple solution. The group spent a good deal of time defining and redefining its terms, operationalising ruthlessly. It also had to learn to see the review as a building block towards understanding inclusive education, not as the whole edifice. In this way, it became possible to resolve ideological differences through more practical considerations.

This process led to the current form of the review question, namely:

“What evidence is there that mainstream schools can act in ways which enable them to respond to student diversity so as to facilitate participation by all students in the cultures, curricula and communities of those schools?”

The RG has learnt a great deal through this process. Inclusive education is a young, fluid and contested field in which ideological conflicts over definitions are endemic. Within this arena, the RG’s definition is crucial in mapping out more clearly a field within which research evidence might be brought together for the first time. The conceptualisation of inclusion with which the RG has sought to operate is, however, neither long-established nor widely-shared. Not only, therefore, does the RG have to manage internal debates over this conceptualisation. It has also found that the majority of research studies that are
potentially relevant to its work have been undertaken – and, incidentally, abstracted and catalogued – within very different conceptual frameworks.

This process is revealing some distinctive characteristics of reviews that are and can be undertaken in similarly new and contested fields. Such fields typically select and interpret the literature to develop new conceptualisations and establish an evidence-base which is likely to be indicative rather than comprehensive. Such reviews may well be rigorous but are unlikely to be systematic in the technical sense. Systematic reviews, on the other hand are easiest where there is an established evidence-base organised in line with accepted language and concepts within a given field. Whether such reviews are a viable means of establishing an evidence base for an emerging field, or are, in effect, innately conservative, is a question which the RG’s work may go some way to answering.

The RG is now completing the protocol for the review, and awaiting comments from peer referees. In the meantime, members of the RG team are identifying the relevant literature in preparation for the next stages of the review process. The review is likely to be ready to go out for peer refereeing in the Spring of 2002.

Concluding remarks

Both these RGs have indicated the steep learning curve which they have been climbing in the last few months. Their reports are very much about ‘work in progress’. By the time of the next conference, the results of their endeavours will be widely available (http://eppi.ioe.ac.uk/reel/). Their hard work will ease the path of the next four RGs (in Continuing Professional Development, Early Years, Modern Languages, and Thinking Skills) which will be registered by the end of 2001, and the EPPI Centre is now conducting a consultation exercise to help in the prioritisation of the next round of RGs for registration in 2002.

References


Correspondence

E-mail: D.Elbourne@ioe.ac.uk
Review Systems: **Tasks** and **Tools**

- Bibliographic Register
- Database of research projects
- Systematic Keywording strategy
- Standard search strategies

**Data Storage, Dissemination and Organisation**

- Standardised Data extraction and coding
- Software to store and analyse the extracted data

**Locating Evidence**

- Dissemination and Support
- Standard review format
- Interfaces for different users
- Guided searches

**Data extraction, synthesis and analysis**
EPPI-Centre Databases (REEL)

- Systematic Reviews in Education
- Systematically interrogated, coded and quality-assessed research
- Bibliographic register
- Research Projects

CERUK database of ongoing research
In collaboration with the NFER and DfEE
Data Storage and Dissemination
Research Evidence in Education Library

The systematic review contains information tailored to the needs of specific audiences e.g. parents, policy makers, pupils, the practitioners.