The Campbell Collaboration: Concept, Status, and Plans

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Executive Summary

Campbell Collaboration: Concept, Status, and Plans

The goal of the international Campbell Collaboration (C2) is to produce, disseminate, and continuously update systematic reviews of studies of the effectiveness of social and behavioral interventions, including education interventions. The objective is to produce reviews that are useful to policymakers, practitioners, and the public. The primary focus is on reviews of randomized, controlled, trial designs; the secondary focus is on quasi-experimental designs.

Inaugurated in 2000, the collaboration’s structure currently includes review Coordinating Groups on Crime and Justice, Education, and Social Welfare. Methods Groups attend to cross-cutting issues on Statistics, Quasi-Experimental Design, and Process/Implementation. A Communications and Dissemination Group will coordinate end-user networks, web sites, and other initiatives to ensure that the information from reviews is accessible to those people and intermediary organizations who can use it. An international Steering Group is responsible for policy. The Secretariat, which is the Collaboration’s operations office, supports activity of the Steering Group and others.

The value of the Campbell Collaboration, and that of its older sibling in health care, the Cochrane Collaboration, lies partly in its uniqueness. No other existing organization in the social and behavioral research sector (a) is dedicated to systematic reviews of high-quality studies of effectiveness, (b) is international, (c) employs advanced statistical methods, (d) adopts transparent and uniform standards of evidence, (e)
specifies rigorous procedures to avoid bias in the screening of studies and in producing reviews, (f) continuously updates reviews, (g) combines new technologies with conventional methods to achieve its aims, and (h) builds end-user networks.

The Collaboration’s plan for developing infrastructure includes the Secretariat, the Communications and Dissemination Group, the Methods Group, and the Steering Group and regional centers in various parts of the world. Over the next three to five years, the Secretariat will develop and continuously update the C2 Social, Psychological, Educational, and Criminological Trials Registry (C2-SPECTR), thus enhancing its use by reviewers. It will coordinate triennial meetings of the Steering Group and annual meetings of the Collaboration as a whole and will assist substantive Review Coordinating Groups in their meetings.

The Secretariat works closely with the Communications and Dissemination Group in web-related activities and in the development of user networks, listservers, and strategic alliances and liaisons with users and producers of review-related information. The Collaboration’s central web site will serve as a locus for information in the Campbell Collaboration Library on protocols, guidelines, reviews, minutes of meetings, and so on. The Secretariat is also responsible for the C2/Penn/RWJF Post-doctoral Fellows program. Infrastructure support will be sought for these activities.

In the Methods arena, the Campbell Collaboration’s plan includes creation of a Center for Methods on Systematic Reviews. This cross-cutting Center will coordinate efforts to develop and update guidelines for systematic reviews. It will advance knowledge about when, where, and how good reviews that meet high scientific standards can be generated. In cooperation with the Secretariat, it will (a) coordinate activity of specialized C2 Methods Groups on Statistics, Quasi-Experiments, and Process/Implementation; (b) generate a registry of relevant methodological studies; and (c) advise on the development of the C2-SPECTR and specialized registries of trials being developed by substantive and coordinating groups in Education, Crime and Justice, Social Welfare, and others. Additional voluntary efforts and financial support are invited for these activities.

The C2 Communications and Dissemination Group, in concert with the Secretariat, plans to develop a web presence and “brand name” that ensures dissemination of trusted, high-quality, and current information. This includes the Campbell Collaboration Library, with C2 reviews, protocols for reviews, and “electronic brochures” that summarize reviews for end-users. In addition, there will be hyperlinks to users and intermediary organizations, transparent guidelines and rules of evidence that the Collaboration employs, and information about C2 articles published in peer-reviewed research journals and users’ trade journals. A second goal is to develop networks of end-user and intermediary organizations to ensure broad information about C2 products and their use. This includes alliances or liaisons with end-users and the production of electronic brochures and review synopses directed to policymakers and intervention planners. Additional voluntary efforts and financial support are invited for these activities.

The C2 Crime and Justice Coordinating Group plans to complete about thirty systematic reviews over the next twelve to eighteen months on topics such as “Scared Straight” programs, boot camps, street lighting, and hot-spots policing, among others. The Group is developing protocols (plans) for reviews on about forty other topics. This Group is also developing a specialized C2 web site in Australia and a specialized registry of crime-related, randomized trials and evaluations that will augment, and be coordinated with, the Secretariat’s C2-SPECTR effort. Also in development are strategic alliances with end-users and intermediaries that will help assure the products are used. The Crime and Justice Coordinating Group has moved quickly partly because it has had the benefit of infrastructure support for a coordinating officer. Additional voluntary efforts and financial support are invited for these activities.

The Coordinating Group on Social Welfare has subgroups to identify topics for systematic reviews and the resources to produce them. These subgroups are on Child Welfare, Housing and Transportation, Child Development and Learning Disabilities, and Immigration and Ethnic Issues. Five to ten protocols (plans) for systematic reviews will be submitted over the next year. The Group also plans to develop specialized electronic registries of trials in the welfare
area and of relevant reviews and meta-
analyses. With the Secretariat and the
Communications and Dissemination Group,
networks of end-users, intermediary
organizations, and related strategic alliances
will be developed. The Group will assist in
the development of the Campbell
Collaboration Nordic Center in Copenhagen
and the Mediterranean Center at Murcia,
Spain. The Group’s members will seek
resources for the coordinating staff and for
systematic reviews.

The C2 Education Coordinating Group and
C2 members have created a number of
Review Groups whose members will develop
systematic reviews on diverse topics. The
Review Groups address the following:
Mathematics Learning, Science Learning,
Instructional Technology, Work-Related
Training and Transferable Skills, Assessment
and Learning, Special Needs,
Comprehensive School Reform, Leadership
and Management, Professional Education,
and Economics of Education. Specific
protocols for systematic reviews have been
developed on Truancy Interventions, Peer-
Assisted Learning, Voluntary Tutoring, and
Second Language Teaching. Protocols are
being developed for Teacher Induction and
Mentoring and for Monetary Incentives and
Educational Achievement. Resources are
being sought for coordinating activity and for
producing systematic reviews. The Group
also plans to develop specialized electronic
registries of trials and evaluations in
education and of pertinent reviews and meta-
analyses. Additional voluntary efforts and
financial support are invited for these
activities.

The next annual Campbell Collaboration
meetings will be held in Philadelphia,
February 21-22, 2002 and in Stockholm,
February, 2003. A major theme for the
Philadelphia meeting is the integration of
reviews so that different outcome variables in
education, crime and justice, social welfare,
and health are recognized in the same
systematic review of a particular intervention.
The meetings will include sessions on
methods, new protocols and reviews, end-
users, and emerging strategic issues.

Contents

0. Introduction

1. Objectives and Precedent

2. Issues and the Rationale for the
Collaboration

3. Products

4. Organization and Operating
Principles

5. Plans: 2001-2004

6. Appendices

0. Introduction

The Campbell Collaboration’s goal is to
produce systematic reviews of evidence on
the effectiveness of social and behavioral
interventions including education. This is to
assure that high quality information on what
works, what does not work, and what is
promising is readily accessible to people who
must make decisions—policy makers,
practitioners, and the public. The first target
is randomized trials, the secondary target is
nonrandomized trials. To understand
something of the intent, consider the
following scenarios.

Representatives of a city’s department of
human services and the juvenile courts meet to
identify problems that they will focus on over
the next two years. With the education
department, they select school truancy as one
of the severe problems that “joins up” all areas.
To learn about which truancy programs work,
staffers download a Campbell systematic
review of studies of effectiveness. The
Campbell review screened 200 studies to
uncover a dozen trustworthy randomized trials.
Three of the programs had strong discernible
effects on educational, criminalological, and
social service outcomes. They decide to adopt
elements of two programs, avoid element of
programs that had no effects, and mount a
randomized trial on their program in their
community.

A radio station in a large metropolitan community
routinely examines the Campbell Web Site for
newsworthy topics. Its producers decided to
highlight a C2 systematic review on “Scared
Straight” in a talk show format. The reason for
this decision was that this review of trials
revealed that the Scared Straight program to
reduce delinquency has discernable negative
effects, rather than positive effects, despite good
intentions. The broadcast involved callers and
interviews with program advocates and people
who did the C2 systematic review. The success
of this leads to a radio series on “what works”
and “what’s promising,” and on air access to synopses of reviews.

A school board considers adoption of a new K-8 science program that requires $10 million of laboratory equipment for elementary and middle grades. The curriculum director shows the board a C2 review that concludes the use of hands-on science programs results in students achieving 15% better on standardized tests. The Campbell review also notes that where professional development for teachers is not included in development in implementation, no significant gains were found. A resolution is passed to make this a top priority in next year’s budget cycle. District officials also authorize a team to visit another district that has already implemented one effective program in preparation for next year’s planning.

The finance committee of a legislature considers a bill to fund a two-year youth mentoring program, fashioned after Big Brothers/Big Sisters. The total costs are $45 million. A legislative aide consults the Campbell website which reveals that mentoring programs result in better achievement and less delinquency for mentees and better relationships between mentees and their parents. However, there is evidence that mentor characteristics and training are important to the success of the programs but insufficient research available about what training works best. The committee uses the Campbell findings to create a modified program that focuses on using only mentors who are known to be effective and funds the program at costs considerably below those originally proposed.

A federal intergovernmental agency group depends on and extends Campbell electronic libraries on randomized and nonrandomized trials to map where trials have been done and where they’ve not been carried out well or at all. This mapping categorizes 6000 trials as to topic areas in a dozen different ways that pertain to the agencies’ missions including housing, minority issues, crime, and health. The map is used as one basis for strategic planning on where better studies of the effects of interventions are needed, and to inform legislation.

In each instance, the decisions of policy makers and practitioners, and the level of debate in the public arena, are improved by the existence of credible and accessible reviews of research. This is the mission of the Campbell Collaboration.

This document provides an overview of the international Campbell Collaboration (C2). First, we cover the Collaboration’s objectives, relevant issues, and rationale. Then, we describe the C2’s products, organization, and operating principles. The last section describes plans for the future. The Appendices contain a progress report and other information.

1. Objectives and Precedent

The Campbell Collaboration (C2) was created to prepare, maintain, and disseminate systematic reviews of studies of the effectiveness of interventions. The reviews are intended to help people make decisions based on the best possible empirical evidence and indeed to learn whether there is any good evidence at all.

C2 prepares the reviews using the most advanced methodology, updates the reviews as new evidence becomes available, and employs state-of-the-art technologies to communicate results to those who will make use of them. Inaugurated in February 2000, the Campbell Collaboration focuses on summarizing evidence about the effects of interventions in social and behavioral areas, including education. Other areas of societal concern may be addressed as professions and disciplines join our group. See http://campbell.gse.upenn.edu for a more detailed description relevant to our objectives.

The Collaboration’s reviews rely first on experiments (trials) that employ random assignment of participants to different conditions so as to reach conclusions about what policies and programs do and do not work. It also makes use of field experiments that were unable to randomly assign participants when such evidence can provide proximate answers to questions that have yet to be addressed using randomized designs. Thus, the Collaboration’s primary focus is on studies that provide quantitative estimates of the impact of policies, programs, and practice. C2 reviews also use process and implementation studies that are often qualitative, when these studies are embedded in experiments.

The end-users of reviews are the focal point of Campbell Collaboration reviews. It is their needs that impel the Collaboration’s activity. End-users include policy-makers, civil servants, intermediary organizations,
practitioners, media, people participating in the interventions, and the general public.

The precedent for the Campbell Collaboration is the Cochrane Collaboration in health care (www.cochrane.org). Established in 1993, the Cochrane Collaboration has produced over 1000 systematic reviews of studies of health related interventions, and over 800 reviews are in preparation. It has developed uniform and high standards for reviews and for the studies that are reviewed. The Cochrane Collaboration has developed infrastructure for managing the production of reviews, including software, CD-ROM, and web-based technology for delivering reviews to users. Its registry on randomized trials in health care and related topics contains over one quarter million entries.

The Campbell Collaboration builds on the Cochrane Collaboration's experience. Both Campbell and Cochrane cooperate to understand how to produce high quality reviews based on excellent evidence in order to serve the public interest. Members of the Cochrane Collaboration have been more than generous in sharing the knowledge they have acquired in building their own organization. The two organizations have a formal liaison agreement.

2. Issues and the Rationale for the Collaboration

Over the past three decades, the volume of research available to policy makers has increased dramatically. From drug abuse prevention to school desegregation, we can find hundreds of studies that purport to examine the effectiveness of social policies and programs. Policy makers look to these studies in the hope that research will assist in making sound decisions about which programs and policies to continue, expand, or abandon. Practitioners look to the research for prescriptions about how best to carry out their work. The public seeks evidence that public policies are having their intended effect.

The promise of evidence-based decision-making in the social policy arena is taking root as demonstrated in welfare reform policies, job training, and criminal justice. In some areas, good evidence exists but has not been summarized. In other arenas, evidence for decision-making is just beginning to be created. In still other arenas, skepticism, if not outright cynicism, exists because many policy makers, practitioners, and members of the public have watched as advocacy groups on opposite sides of an issue point to studies that support their position but conflict with one another. They have watched researchers question the trustworthiness of each other’s findings, leading to diminished credibility for all research. The Campbell Collaboration seeks to overcome these challenges.

These episodes, and the resulting perception of a diminished value for empirical evidence in setting public policy, can be traced to at least four characteristics of social research. First, broad-based policies and programs are carried out in real world contexts, as are experiments. The contexts in which the experimental evidence is provided may or may not match the contexts in which the policies operate. The complexities of setting introduce factors that influence whether or not a policy or a program will produce the desired results. The important nuances of setting are difficult to recognize and even more difficult to represent within the confines of a single study.

Second, for practical reasons, social research will be imperfect. The flaws mean that explanations for the outcome of a study other than the effectiveness of the policy or program itself will remain plausible. Most typical among these design flaws are that program participants are not or cannot be randomly assigned to receive or not receive an intervention. This leave open the possibility that pre-existing differences between the people who received the intervention and those who did not receive it account for any observed outcome differences.

Third, the outcome of any single study may be important, but must be considered as one study in a sample of a population of studies. Therefore, when many studies on the same topic have been conducted with variation in direction as well as the magnitude of treatment effects, variation is not surprising. Perhaps, it is even expected. Often, this variation is due to sampling uncertainty and is mistakenly labeled as conflicting results.

Fourth, the volume of research, the numbers of outlets for research findings, and the number of people who interpret the original researchers’ findings, have all increased. As the evidence base increases, outlets
expand, and interpreters multiply, there is an inevitable increase in discordant voices.

After decades of neglect, many social scientists now agree that a reasonable solution to these problems can be found not only by improving how individual studies are carried out, but also in how studies can be better accumulated and in how evidence from multiple studies is treated. The influence of context on evaluations can be examined in reviews of research by comparing the outcomes of groups of evaluations that include varying participants, settings, and treatment characteristics, even though no single study contained all the variations. Multiple studies can be grouped according to the strengths and weaknesses of their designs. If studies with different strengths and weaknesses lead to similar results, greater confidence can be placed in a review’s conclusion than in the results of any single evaluation. If results are different, rival hypotheses can be identified for future study. Finally, by statistically combining the results of multiple studies (that meet previously specified criteria regarding their relatedness to the problem at hand and methodological quality) the general effect of a policy or program can be pinpointed more precisely than from a single investigation. The variation about this midpoint can also be estimated.

Because of the potential value of systematic research reviews in the policy domain, both the producers and consumers of reviews must think about what distinguishes good from bad reviews and good from bad studies. Further, most agree that without high-quality reviews, policy makers and practitioners will question the value of research for assisting the development of effective public policy. The issues now facing social scientists, policy makers, and other interested people are how to define high-quality reviews, how to train reviewers, and how to communicate the results of reviews to those who might formulate and implement policy and practice.

Efforts are underway to “raise the bar” regarding how both primary research and systematic reviews are conducted in the policy arena. First, methodological developments over the past several decades have transformed the way social scientists now carry out systematic reviews of empirical evidence. Second, in health care, the Cochrane Collaboration has become a recognized vehicle for accumulating studies and the production and dissemination of high-quality systematic reviews of research. Third, in social policy, the recent emergence of the Campbell Collaboration promises to bring the same kind of rigorous treatment of literatures to research in the social sector.

3. Products

The Collaboration’s core products include:

- C2 Systematic reviews and registry of C2 reviews
- User-oriented synopses of C2 systematic reviews: Electronic brochures
- C2-Social, Psychological, Educational, and Criminological Trials registry (C2-SPECTR) and other specialized registries of studies of effectiveness
- Registry of Abstracts of Reviews and Meta-analyses
- Methodological studies and Methodological Studies Registry
- Protocols and protocol registry
- C2 Procedures, guidelines, and standards database

More detail is given in the section entitled Plans.

3.1 Core Products

The core products of the Campbell Collaboration will be contained in the Campbell Collaboration electronic Library, updated quarterly on the web site.

The first main product is the Register of C2 Systematic Reviews of Studies of Interventions. The Register contains the systematic reviews that are produced by collaborators, criticisms and comments on the review (if any), and information about the review groups that carry them out. The quality of the reviews in the Register of Systematic Reviews will be enhanced by an updating system through which successive versions of each review reflect the emergence of new data, new methodologies, and valid criticisms, solicited or unsolicited, from any source.

This product will also include electronic links, where possible, to all of the original studies that are covered in each C2 review and to micro-data sets that were the basis for statistical analyses in each of the studies. In
the ideal case, the electronic form of the systematic review of Scared Straight randomized trials, for example, would contain links to parts or all of digitized reports on the studies and to electronic data archives maintained by (say) the Inter University Consortium (ICPSR). This ideal, of course, depends on the Campbell Collaboration’s willingness to be proactive in using emerging technologies and resolving the problems that the use engenders, with other organizations to do so.

The second core Campbell Collaboration product is a Registry of Synopses of Campbell Systematic Reviews. This product is oriented toward the end-user of the evidence. The synopses, or "electronic brochures," will summarize the results of the systematic reviews as briefly and simply as possible, will be formatted uniformly, and will be categorized and searchable to facilitate their use. Links will exist between the electronic brochures and related core products, such as the detailed systematic reviews. Intermediary organizations may also produce synopses. When the latter meet C2 standards for accuracy, these can also be linked to the Registry or Synoposes of Campbell Systematic Reviews.

The third core product, the C2-Social, Psychological, Educational and Criminological Trials Registry (C2-SPECTR), which currently contains over 10,000 entries on randomized trials and what seem to be randomized trials. Unique in the world, C2-SPECTR is composed of abstracts on completed randomized experiments and on planned experiments. Updated continuously, its contents are part of the ingredients for Collaboration’s systematic reviews. The contents are augmented by the reviewers. It is expected that the C2-SPECTR will eventually include a complementary register of the highest quality studies employing quasi-experimental designs.

A fourth planned database is the Registry of Abstracts of Reviews and Meta-Analyses. It will include reviews conducted outside the Campbell Collaboration that have met C2 standards of quality. This database will help the Collaboration to avoid unnecessary duplication. The database will post reviews and meta-analyses that have been published in peer reviewed journals and that have not been published in such journals, in the areas covered by Campbell. They will be indexed as to whether they meet the C2 guidelines for high quality systematic reviews.

A fifth core product will be a Registry of Methodological Studies including studies done by C2 people. This will contain scholarly articles related to all aspects of systematic review methodology. This social science methods database will sit alongside its Cochrane Collaboration counterpart covering the health sciences literature so the two registers could be searched using the same strategies.

The C2 protocol Registry contains all protocols (plans) for each systematic review proposed by individuals or teams. The Registries’ function is to permit anyone to criticize a plan, make suggestions about its improvement, and identify parallel efforts so as to avoid duplication.

Finally, the Campbell Collaboration will produce a database that contains information on all the procedures, guidelines, and standards used in reviews, and about entities within the Collaboration responsible for developing each. Collaborators feel it is crucial that these procedures be transparent and uniform. This product will include by-laws and continuously updated plans for the C2 Steering Group, the Secretariat, the Communications and Dissemination Group, the Methods Group, and each of the Review Groups. Most important, it will include the Handbook on Systematic Reviews that will cover details for the entire review process, a glossary of methodological terms and Campbell Collaboration jargon, and contact details for review groups and other entities in the Collaboration.

3.2 Reviews under Development

During the year 2000 – 2001, C2 Coordinating Groups issued invitations to selected people to undertake systematic reviews of studies on various interventions. The plans for reviews are called “protocols” in what follows.

Crime and Justice protocols have been produced and lead reviewers identified for reviews of studies of CCTV, Street Lighting, Boot Camps, Hot Spots Policing, and Cognitive-Behavioral Programs for Offenders. Protocols are being negotiated for production of reviews on Length of Prison, Restorative Justice, Electronic Monitoring, Home Visitation, Juvenile...
Curfews, Faith-Based Programs, Child Skills Training, and Treatment of Psychopaths.

For the Education Coordinating Group, there are draft protocols and lead reviewers for reviews of Truancy Programs, Voluntary Tutoring, Peer Assisted Learning, and Second Language Training. Negotiations have been under taken to determine the feasibility of reviews on Teacher Induction and Mentoring and on Monetary Incentives and Educational Achievement. Lead persons have been identified for developing protocols in mathematics learning, science learning, work-related learning and transferable skills, medical education, leadership and management in education, and assessment and learning.

Finally, the Social Welfare Coordinating Group has approved Review Groups on Child Welfare, Learning Disabilities, Housing and Transportation, Ethnicity, and Workfare. Negotiations are underway to identify specific topics that merit systematic review in one or more of these areas.

3.3 Organizational Products

The Campbell Collaboration will produce good core products for people. The Collaboration’s intermediate organizational product is an international network of people who are interested in using and generating evidence that will help us understand the quality of evidence, the “value” that evidence has in different sectors and countries, and how the evidence on the effectiveness of programs is used by each.

3.4 Intellectual Maps as a Product

Nobody has mapped where good research has been done (the dry ground), where it has not been done (the deep water), and where the evidence is very uncertain (the swamps). The reason why nobody has done it is because the task is beyond the individual or the university based team or the high quality research institute.

Maps of what is known can be drawn by an international effort such as the Campbell Collaboration.

4. Organization and Operating Principles

The Collaboration’s organization was developed by people with a strong interest in the Collaboration’s aims. Their voluntary efforts during exploratory meetings during 2000 and 2001 in London, Stockholm, Paris, Philadelphia, and elsewhere were patterned partly on the Cochrane Collaboration precedent and on the unique qualities of social and behavioral research. The Appendix gives detail on the Collaboration’s progress.

As of February 2001, the C2’s organization comprises: the C2 Non-Profit Corporation; Steering Group; Secretariat; the Methods Group; the Communications and Dissemination Group; and Coordinating Groups on Crime and Justice, Social Welfare, and Education. In addition, Campbell Centers with specialized geographical focuses have begun to evolve. The C2 Nordic Center and Murcia are examples.

Five entities provide organizational and infrastructure support for the substantive activities of the Collaboration. These infrastructure entities include the: the C2 Nonprofit Corporation; C2 Steering Group; Secretariat; C2 Methods Groups; and C2 Communications and Dissemination Group.

The Campbell Collaboration: A Non-Profit Corporation (1/3/01) is a legal entity incorporated in the Commonwealth of Pennsylvania. Legal papers have been filed with the U.S. Internal Revenue Service to obtain probationary status as a 501 (c) 3 nontaxable organization. The decision to go ahead with this was made at the Cape Town, South Africa meetings of the C2 Steering Group (10/00) and the incorporation has been organized by the Secretariat.

The Steering Group was elected at the C2 working inaugural meeting (2/24/00). It consists of eight members from four countries and is responsible for developing the Collaboration’s policies, overseeing general operations, and approving guiding principles for various working groups. Its members represent different substantive areas covered by the Collaboration, notably, crime and justice, social welfare, and education, and infrastructure groups that represent the communications and dissemination, the C2 Secretariat, and methods. The names of key people and their affiliations are given at the front of this document.

The C2’s Secretariat, currently located at the University of Pennsylvania, is an operations office. It has been responsible for coordinating C2 activities, organizing the C2
annual meeting and Steering Group meetings, developing the C2 web site, and developing electronic registries of studies that fall within the Collaboration’s ambit such as C2-SPECTR. The Secretariat is also responsible for coordinating IRS approval of the 501 (c)3 Non-profit Corporation as a nontaxable entity. The Secretariat maintains email lists, other communications vehicles for C2, and the web site, for which the Secretariat acquired appropriate urls (Campbell Collaboration.com/net/org, C2 Systematic reviews.com/net/org). The latter activities are in concert with the C2 Communications and Dissemination Group. Dorothy de Moya is Executive Officer for the Secretariat and she reports to the Steering Group.

Three C2 Methods Groups were approved at the Campbell Collaboration’s First Annual Meeting (2001). The Methods Groups are responsible for guidance and research on methods, and assisting the Collaboration to ensure that C2 reviews are of the highest quality. They focus on Statistics, Quasi-Experiments and Process/Implementation Studies in the context of randomized trials.

Other Methods Groups are being organized. Methods group members also serve as editorial advisors on reviews undertaken by all other C2 Review Groups. The Chairs of the Methods Groups and relevant Steering Group member are identified at the front of this document.

The C2 Communications and Dissemination Group’s remit is to provide guidance on and strategic planning for dissemination and use of C2 products in cooperation with the C2 Secretariat. This includes guiding the web site development and adoption of related technologies. It includes collaborating with intermediary organizations to disseminate information about C2 and C2 products further, and to repackage C2 products for particular target audiences. It will also help to guide C2’s development of networks of end-users of C2 products. Merry Bullock (US) chairs this group. It is a focus for developing networks of end-users in each review area.

Three entities provide the substantive expertise and organization to generate substantive reviews: the C2 Crime and Justice Coordinating Group; the C2 Social Welfare Coordinating Group; and the C2 Education Coordinating Group. Each group’s main responsibilities lie in developing guidelines for and helping to make decisions about which topics deserve systematic reviews, identifying people who can assist in decisions and who can undertake reviews and edit them, and developing links to other people and entities, including end-users who can contribute to or capitalize on reviews.

Each of these C2 Coordinating Groups is advancing at a different pace. The Chairpersons of these groups and of working groups (subgroups), and Coordinators are identified at the front of this document. Each engages activities that are the same across groups, the sameness is a value added by the Secretariat, the Methods Groups, the Communications and Dissemination Group, and the common aim of the collaborators. The differences in the C2 Coordinating Groups helps to keep the Collaboration open to new ways of doing things, and is a value added by members of the Coordinating Groups and C2 Collaborators.

The C2 Crime and Justice Coordinating Group focuses on studies of the effectiveness of interventions in the juvenile and adult arenas, prevention and control of civil and criminal offences, and the courts. In meeting its responsibilities to help identify topics, people, and linkages that result in excellent systematic reviews, the C2 Crime and Justice Review Group depends on C2 Methods Group, the C2 Communications and Dissemination Group, the Secretariat. The Group cooperates with members of the Education Group and the Social Welfare Group to assure that systematic reviews are cross-cutting (“joined up”) in European policy vernacular.

The C2 Social Welfare Coordinating Group attends to studies on the effectiveness of interventions in welfare, including employment and training of populations that are at economic risk, housing and transportation, and social services including those pertaining to child abuse and neglect, minority populations including immigrants, and other topics. This group’s responsibilities include identifying review topics and people who can help in producing excellent reviews, and identifying end-users. In meeting these responsibilities, the Social Welfare Group depends on the C2 Steering Group, Secretariat, Methods Groups, and the Communications and Dissemination Group. To get beyond disciplinary boundaries, the group cooperates with other coordinating groups.
The C2 Education Coordinating Group covers studies of the effects of interventions in preschool, and early childhood, elementary and secondary school, college and professional education including medical and health professions education, and continuing distance education. This group’s mission is identical to other groups’ aims—to identify topics for review, engage able people in producing systematic reviews that meet C2 standards, and to assist in the dissemination of reviews through links with end-users. This Coordinating Group, as others in the Campbell Collaboration, depends on the infrastructure support of the Secretariat, Steering Group, Methods Groups, and Communications and Dissemination Group. It cooperates with the other substantive area coordinating groups so as to assure that C2 transcends conventional disciplinary boundaries. It has taken a leadership role in this project.

Specialized Campbell Collaboration Centers are evolving to serve training, production, and communications’ needs in particular to geographic/regional areas (see Plans). These form part of the C2 infrastructure and include the following.

The proposed Center for Systematic Review Methodology at the University of Missouri will provide methodological support to all C2 review groups, C2 regional and substantive centers and C2 collaborators. This Center’s methodological support will include training, communication, and reference database management. It will be directed by Harris Cooper.

To support regional C2 activity, the Danish Ministry of Social Affairs has agreed to create a C2 Nordic Center in Copenhagen. This will serve as a geographic node for Sweden, Denmark, Norway, Finland, and Iceland. Further, a review and methodology unit has been created at the Universidad de Murcia, in Spain. The plan is to use this as a base for serving C2 activity in the Mediterranean region. Other Centers are being discussed, but no firm plans for them have been made.

Operating Principles

The Campbell Collaboration’s Operating Principles, adopted at the inaugural meeting, help to make clear the values that Collaborators have in joining this effort, and help to shape procedures for generating systematic reviews. They also influence the development of infrastructure, notably by implying what kinds of human resources are needed to achieve C2’s aims. The Campbell Collaboration is based on the following principles:

1. Fostering open communication and cooperation between researchers and policy makers, practitioners, and the public.
2. Minimizing bias by maximizing scientific rigor, assuring broad participation, and avoiding conflicts of interest.
3. Promoting reviews that use outcomes that are relevant to end-users.
4. Inviting critical comment, applying advances in methodology, and developing systems for quality improvement.
5. Disseminating widely the Collaboration’s products and taking advantage of strategic alliances.
6. Keeping current by assuring that systematic reviews are kept up to date through incorporation of new evidence.

These operating principles drive the procedures that are used to generate a Collaboration main product, systematic reviews. (See the Appendix.) They also drive the development of the raw materials for producing systematic reviews, such as registries, editorial groups, methodological studies, and maps of where evidence exists.

5. Plans: 2001-2004

Since 1999, people who are interested in the aims of the Campbell Collaboration have dedicated substantial voluntary efforts to its development. Voluntary efforts alone are insufficient to advance the Collaboration further and in an orderly way. Collaborators recognize nonetheless, that volunteerism will remain an important ingredient in different parts of the world and in different substantive areas at various times.

The following plan builds on the Collaboration’s progress thus far. It attends to (a) infrastructure entities, including the Secretariat and Steering Group, Methods Groups, Communications and Dissemination Group, and the Coordinating Groups in Education, Crime and Justice, and Social
Welfare, and (b) producing flagship reviews in each substantive area that C2 covers. This plan covers a three-year period beginning September 2001. Unless stated otherwise, funding is being sought for each of the infrastructure entities and for the production of systematic reviews in each substantive area—crime and justice, social welfare, and education. Collaborators have either developed detailed proposals for work in each area or are working on proposals for work in each area.

5.1 C2 Secretariat and Steering Group: 2001-2004

The Secretariat’s plans are to:

- Develop C2’s organization and infrastructure
- Develop, maintain, and make accessible C2-SPECTR
- Implement the C2/RWJF/PENN Post Doctoral Fellowship program
- Coordinate and service the C2 Steering Group
- Coordinate with and implement plans of the C2 Communications and Dissemination Group
- Provide infrastructure support to the C2 Methods Groups, and C2 Coordinating Groups on Crime and Justice, Social Welfare, and Education

Each activity, products of the activity, and key personnel are described in what follows.

Main Activities

- Develop the C2 organization and infrastructure.

During Year 1, the Secretariat’s activity includes identifying and engaging a C2 Executive Director and constituting a Board of Trustees for the C2-Non-profit Corporation (501 (c) 3) with the counsel of the C2 Steering Group and other sources of counsel. Paid staff for the Secretariat will be identified, including an Executive Director, Executive Officer, a Communications Officer, and support staff.

- Develop, maintain, and make accessible the Campbell Collaboration’s Social, Psychological, Educational, and Criminological Trials Registry (C2-SPECTR).

The Secretariat, in cooperation with collaborators in the C2 Methods Groups, Coordinating Groups, and Review Groups, will augment and improve the C2-Social Psychological Educational and Criminological Trials Registry (C2-SPECTR). This includes identifying entries for a prospective registry of trials that are planned, and in process, as well as adding reports on trials that are completed. In cooperation with the substantive Review Groups, special efforts will be undertaken to identify trials that are not reported in peer reviewed journals that are not widely accessible. Senior level research assistants will be responsible, under supervision, for augmenting the C2 web site with this information.


The Secretariat has responsibility during 2001 – 2004 for running the pilot post doctoral Fellowship Program that involves C2, the Robert Wood Johnson Foundation, and the University of Pennsylvania. This post-doctoral program is coordinated with other post-doctoral programs at Penn and with others that may be developed with C2 colleagues in North America, the Nordic countries, and elsewhere. Coordinated by Dorothy de Moya (US), this entails methodological training and experience building for Fellows in cooperation with members of the Collaboration. Two to four Fellows will be appointed over 2001 to 2004. At least one of the Fellows will dedicate substantial time to Collaboration activity.

- Coordinate and service activity of the Campbell Collaboration Steering Group.

The Secretariat will be responsible for coordinating activity and servicing the C2 Steering Group. This includes helping to plan Steering Group meetings and helping to plan the C2 Annual Meetings in 2002, 2003, and 2004. Support for annual meetings during 2001-2003 of the Steering Group has been provided by the Rockefeller Foundation (Bellagio Center).

- Coordinate with and implement plans of the C2 Communications and Dissemination Group.

The Communications and Dissemination’s Group is discussed later. Its activity is
supported by the Secretariat, which also assists in coordinating its activity with other C2 entities and with organizations apart from C2. The joint activities include: web site development, dissemination of information, and development of end-user networks of policy-makers, practitioners, and the public.

- Provide infrastructure support to the C2 Methods Groups, and C2 Coordinating Groups in Crime and Justice, Social Welfare, and Education.

The Secretariat is a locus for coordinating the activity of other C2 entities, keeping track of their activity and products, assuring that their work is integrated across substantive area interests. It also helps the Communications and Dissemination Group to assure that their activity and products are understood by C2 people and by potential and actual end-users of C2 products.

**Expected Products**

Over the next three years, the main expected products are as follows:

- IRS approval of 501(c)3 status as a Non-profit Corporation
- Appointment of a Board of Trustees for the Campbell Collaboration Non-profit Corporation
- C2 Social, Psychological, Educational and Criminological Trials Registry
- Meetings of the C2 Steering Group and of the C2 Annual Colloquiums, and plans for and minutes of the proceedings of these meetings
- C2 End-User Network and relevant email lists
- Improved C2 web site, satellite sites, and hyperlinks
- Newsletter, workshop and lecture templates on C2, and electronic brochures of synopses of C2 systematic reviews
- Systematic reviews that are indirectly supported by the Secretariat
- Methods Groups products that are indirectly supported by the Secretariat

**Key Personnel**

Key personnel at the C2 Secretariat include Robert Boruch, (Co-chair, Steering Group) and Dorothy de Moya (Executive Officer for the Secretariat). Merry Bullock (American Psychological Association) Chairs the Communications and Dissemination Group. A Director for Web Site Development for Years 1 and 2 has to be identified.

C2 Steering Group members ought to be regarded as key personnel. Its members represent Review Groups, Methods Groups, and Dissemination and Technology. Its members are: Dennis Cheek (US); Philip Davies (UK); Joan McCord (US); Haluk Soydan (Sweden); Helen Thomas (Canada); Harris Cooper, (US); Merry Bullock (US); Lisa Bero (Cochrane liaison, US); and Robert Boruch (US).

Robert Boruch (US) and Haluk Soydan (Sweden) co-chair the C2 Steering Group. Boruch has been responsible for many of the chores that an Executive Director would have. An Executive Director who is skilled at and talented in administration and management needs to be identified.

**5.2 C2 Methods Groups: 2001-2004**

The general mission of the Methods Groups is to provide technical and infrastructure support to the Collaboration as a whole. A major goal is to establish the Campbell Center for Systematic Review Methodology (CCSRM), a locus for providing support, training, and technical assistance, for which a full proposal has been prepared.

**Main Activities**

- Help to establish new methods groups.

The CCSR will assist individuals who are interested in establishing new methods groups within the Campbell Collaboration. This assistance will include facilitating exploratory discussions and meetings among international collaborators with similar interests in systematic reviewing methodology. It will also include providing guidance on how to complete successful applications for group registration.

- Support existing methods groups.

The CCSR will support existing methods groups by maintaining a directory of people contributing to the methods groups. The directory will contain information about their individual responsibilities and interests and by conducting annual surveys of the methods groups’ activities. The CCSR will
also provide small honoraria for group conveners, and some travel funds to offset conveners’ travel to Collaboration meetings. Minimal secretarial assistance will also be provided to methods groups.

- Publish a Campbell Collaboration Methods Group Newsletter.

The newsletter will keep all members of the Collaboration informed about methods group activities. It will contain, among other things, (1) brief articles prepared by methods group members, (2) structured abstracts and commentaries on methodological research of special interest to Collaboration members, (3) reports on methodological studies conducted within the Collaboration, (4) reports on the activities of registered methods groups, (5) reports on possible new methods groups, (6) an overview of methods activities prepared by the Center Director, and (7) notices of future meetings of interest to Collaboration members.

- Organize methodology workshops for the annual meetings of the Campbell Collaboration and at other times as required.

Each meeting of the Campbell Collaboration should make available to attendees a series of workshops meant to improve the skills of researchers who are involved in or intend to become involved in the production of systematic reviews. These skills can involve diverse aspects of review methodology, including literature search strategies, coding of primary studies, effect size estimation, statistical synthesis of results, and report preparation. The Center will assist the Collaboration to ensure that these workshops are available. This will be done by drawing on the expertise of individuals involved in methods groups, as well as others invited to present at the annual meeting because of their specific expertise. It is also planned that workshops on systematic reviewing will be made available to other professional organizations or as stand-alone events.

- Convene the Methods Editorial Group.

The Methods Editorial Group serves as the editorial team for systematic reviews of research methodology. As such, it is composed of individuals who agree to (1) critique protocols of proposed reviews of methods and (2) review completed methodological reviews. The Center Director will serve as the convener of this group and act as the contact person for individuals and groups wishing to carry out reviews of methods for inclusion in the Campbell Library.

- Work in partnership with the Cochrane Collaboration to establish and maintain the Campbell Register of Methodological Studies.

The Cochrane Collaboration currently maintains a Methodology Register that contains nearly 3000 records of scholarly articles related to all aspects of systematic review methodology. An effort is currently under way to add keywords, structured abstracts and commentaries to the records in the Register to make it more useful to users. The great majority of its content comes from medical journals and a similar database of methods research in the social sciences is possible. The Center will undertake creation of a social science methods database and explore with the Cochrane Collaboration whether this database could be integrated with its Cochrane counterpart so the two registers could be searched using the same strategies.

- Assist the Campbell Collaboration in the development and timely revision of its guidelines for review proposals (protocols) and its handbook for conducting systematic reviews.

The methods group conveners have developed a draft set of guidelines for the preparation of protocols for Campbell Reviews. The Campbell Collaboration Steering Committee should shortly establish an ad hoc committee with representatives from each of the five working groups (Crime & Justice, Education, Social Work & Social Welfare, Methods, Dissemination) to develop a Campbell Reviewer’s Handbook and related software. This committee most likely will examine as critical references several existing texts that address systematic review methodology, including but not restricted to the Cochrane Reviewers’ Handbook.

Obviously, the methods groups will play a significant role in the both the protocol guidelines and the development of the Campbell Reviewers’ Handbook. The Director of the CCSRM will assist in these efforts and will coordinate the contributions of others representing methods groups.
However, this proposal does not contain funds to directly support the development of the Campbell Reviewers’ Handbook.

- Assist the Campbell Collaboration in finding other ways of helping the public, policy makers, and consumers to make full use of systematic reviews of public policy.

These opportunities will arise as the Campbell Collaboration matures. For example, during its first year, the methods group representative to the Steering Committee served as a member of an ad hoc committee to explore ways to organize and disseminate the Campbell Collaboration Social Psychological Educational and Criminal Trials Register. The CCSRM will coordinate the methods group contribution to the C2 databases of studies with the expectation that two such databases be developed, one including randomized trials and a second including other types of high-quality research. Members of the methods group working committee also attended meetings meant to acquaint funding agencies in education and social welfare and private research firms about the workings of the Collaboration. These activities are expected to continue through the period covered by the grant.

Expected Products

Within the three years covered by this proposal, the CCSRM expects to produce, or help produce, the following products:

- at least seven registered and functioning of methods groups within the Collaboration;
- a directory of methods group contributors updated on an semi-annual basis;
- three annual issues of the Campbell Collaboration Methods Group Newsletter;
- methodology workshops presented at each of the Campbell Collaboration annual meetings and other workshops held independent of the annual meeting;
- a first edition of the joint Campbell Register of Methodological Studies;
- a decision about whether to integrate the Cochrane and Campbell Registers of Methodological Studies and, if so, an established process for updating and maintaining the joint register;
- a functioning Campbell Methods group web site.

The web site will be used to help accomplish several of the activities described above (e.g., new group registration, communication among existing groups, newsletter); and a Handbook for Producing C2 Systematic Reviews.

Key Personnel

Harris Cooper (US) represents Methods Groups on the C2 Steering Group and will direct the Campbell Center for Systematic Review Methodology. Other key people include the Chairs of C2 Methods Groups, David Myers (US), and Jennie Popay (UK), and the C2 Steering Group’s Co-Chair, Robert Boruch (US).

5.3 C2 Communications and Dissemination Group: 2001-2004

The C2 Communications and Dissemination Group, in cooperation with the Secretariat, will develop and coordinate activities to deliver C2 products (reviews, registries, protocols, synopses, summaries) to researchers, policy makers, practitioners, and the public. These activities are in concert with C2 Coordinating Groups in Education, Social Welfare, Crime and Justice, and the Methods Groups.

The central products include development and maintenance of a comprehensive web site, including the Campbell Libraries; coordination of outreach activities to the research community; and development and coordination of end-user networks to promote participation in Campbell Collaboration activities and use of Campbell Collaboration reviews.

Main Activities

- Development and maintain the C2 web site.

The C2 Central website will serve to establish a common C2 identity and “look,” and will provide entry to the Campbell Libraries. The C2 Website (address www.C2org) will include:

- General information about systematic reviews and the C2 collaboration
- Entries to the homepages for each Campbell Coordinating Group in Crime

- The Campbell Library
  - Systematic Reviews
  - Research Registries
  - C2-SPECTR
  - Meeting laws, proceedings, and minutes
  - Archives
  - “Best Evidence-What Works?”
  - “Electronic Brochures” (synopses)
  - Links to partner organizations.

- Disseminate information about C2 activities and infrastructure to the research community so as to encourage training about research synthesis and production of systematic reviews.

The C2 Communications and Dissemination Group will create materials (newsletter articles, template lecture and workshops) to be used to present information about C2 to different constituencies. It will work with the Campbell Coordinating Groups to facilitate presentation of these materials in relevant venues (e.g., professional association annual meetings, policy briefings, Continuing Education workshops).

- Develop End-User networks, participation and materials.

The Communications and Dissemination Group will develop networks of end-user groups (policy makers, practitioners, public) to facilitate participation in the planning, implementation and evaluation of C2 review in each of the Coordinating Group substantive areas, and to assure use of C2 reviews and summaries. In concert with the C2 Coordinating Groups, the Communication and Dissemination group will provide advice on guidelines for the role of end-users in the C2 Steering Group, in the Coordinating Groups, and in editorial review.

It will also help to form strategic alliances with intermediary organizations to develop brochures and other materials derived from C2 reviews targeted to policy-makers, practitioners and the public. Examples of such intermediary organizations include the Education Commission of the States, International Federation of Social Workers, and the Association of Chiefs of Police.

Expected Products

The anticipated products of the C2 Communications and Dissemination Group are as follows:

- Redesigned and continuously maintained Web Sites
- Searchable database of C2 “Best Evidence” Electronic Brochures
- Web links to Campbell Libraries: C2 Reviews, Protocols, Synopses, Prospective Registers, and others
- Electronic mail lists and C2 end-user networks

Key Personnel

The people who are responsible for advancing the aims of this group and for production include Merry Bullock (Chair of the Group), Dorothy de Moya (Executive Officer, C2 Secretariat), Robert Boruch (Co-Chair, C2 Steering Group), and Jerry Lee and other active contributors to the Group. A Communication Officer and a website/information science expert need to be identified.


Main Activities

The main plan is to establish the foundation for a Crime and Justice Coordinating Group as part of the Campbell Collaboration. Support will be sought for staff and infrastructure, including support for a Coordinator who will assist Review Group activities. Activities of the group during the first three years will include the following:

- Develop protocols to provide systematic reviews for approximately 40 topic areas for the control of crime and promotion of justice.

The topics identified in what follows are ones that are targeted by the Crime and Justice Coordinating Group for C2 systematic reviews. Protocols (plans) for a systematic review have been developed for about ten of the topics and protocols for the remainder are being developed:

- Boot camps, child-skills training, use of closed-circuit television, behavioral programs for offenders, community service orders, electronic monitoring,
faith-based programs, hotspots policing, juvenile curfews, length of prison confinement, neighborhood watch, non-pharmacological treatment of personality disorder, parent training during early childhood, restorative justice, street lighting, aftercare services for juvenile offenders, domestic batterers treatments, drug courts, interventions for children of parents in prison, interventions for gun violence, interventions for serious and violent juvenile offenders, polite policing, prison-based drug treatment, reentry programs for prisoners, repeat victimization programs, sex-offender treatments, and recreational programs.

- Complete systematic reviews on approximately 30 topics.

Most of the topics listed above will be completed. It should be noted, however, that the commitment to high quality of the Campbell Collaboration may result in difficulties for some of the proposed systematic reviews.

- Provide training workshops for the development and use of systematic reviews.

Plans are being made to provide workshops in conjunction with major conferences among criminologists, conferences such as the American Society of Criminology. These workshops will be planned and laid on with the assistance of the Methods Groups and the proposed C2 Center for Systematic Review Methodology (CCSRM) in the US and proposed C2 Nordic Center, and with the support of the C2 Secretariat including the C2 Communications and Dissemination Group.

- Design and maintain a C2 Crime and Justice Coordinating web site.

The Group has established an Australian base for this activity. The web site will be linked with the web site of the National Institute of Justice as well as with the web site of the Campbell Collaboration, which in turn will provide linkage to the Education Coordinating Group and the Social Welfare Coordinating Group of the Campbell Collaboration.

The web site will be used partly to search for unpublished reports of research on topics identified for systematic review as well as for dissemination of results. The Australian web site will include provision for end-user inputs and comments. These will be coordinated with the C2 Communications and Dissemination Group products.

- Develop and maintain a database that can be used for research.

The database will be useful for topics that cross-traditional lines of research and research that focuses on some subset of the studies that have been summarized in systematic reviews.

- Develop strategic alliances with end-users of reviews.

Such alliances are already being developed with the International Society of Criminology, the American Society of Criminology, and the Crime Journalist Association. Other alliances will be developed. This activity includes assisting the Campbell Collaboration, to help define the form and function that alliances should take, in concert with the C2 Secretariat and the C2 Communications and Dissemination Group.

- Develop a specialized registries of evaluations related to Crime and Justice.

Crime and Justice Coordinating Group people, such as Anthony Petrosino, have contributed remarkably to the development of the Campbell Collaboration’s Social, Psychological, Educational, and Criminological Trials Registry (C2-SPECTR). Other, more specialized registries are needed. The Group plans to develop a registry of evaluations related to Crime and Justice that includes nonrandomized trials as well as randomized trials (CCJG-EVAL) and a registry of existing relevant reviews and meta-analyses (CCJG-REVIEW).

In each year, the Crime and Justice Coordinating Group will meet twice. This will be coordinated by the Center.

Products

Products of the Coordinating Group and people who contribute to the C2 systematic reviews over the next three years include the following:

- Approximately 30 completed systematic reviews, published on the web site
• Approximately 40 protocols for planned reviews, published on the web site
• A Crime and Justice Web Site linked to the main C2 web site and other related sites
• Strategic alliances with end-user groups and creation of mail lists
• Specialized registries of evaluations related to crime and justice
• Plans, minutes, and proceedings of meetings posted on the C2 web sites

Key Personnel

Key personnel in the Crime and Justice Coordinating Group and the Group’s activity include the following. A ten person Crime and Justice Steering Group Committee guides the development of the Group. Chaired by David Farrington (Cambridge, UK), its members represent Australia, Germany, Canada, Israel, Taiwan, and the United States. The Coordinator for the Crime and Justice Coordinating Group will be Anthony Petrosino (American Academy of Arts and Sciences).


The goal of the Social Welfare Coordinating Group is to support reviews of the effectiveness of interventions related to social welfare. The aim is to assure that these reviews are updated and made readily accessible to end-users—members of the public, practitioners and their communities, and policy makers—so as to help people to make decisions. This broad goal and aim depends on the following working subgroups and their respective Chairs:

Child Welfare: John Schuerman
Housing and Transportation: Mark Petticrew
Child Development Problems and Learning Disabilities: Geraldine Macdonald
Immigration and Ethnic Issues: Haluk Soydan

It is anticipated that other subgroups will form as others become involved.

Main Activities

The Social Welfare Coordinating Group has some independent tasks related to its specific content area. However, most of the activities will be accomplished in collaboration with other Campbell groups. The Group’s activities are as follows:

• Identify topics/viewers for systematic reviews. Five to ten protocols per year will be submitted from the subgroups.

The Coordination Group will assist review groups and subgroups in identifying timely questions and /or review groups leaders who wish to complete reviews.

• Develop a specialized registry of trials related to social welfare.

This involves identifying trials in registries maintained by the Campbell Collaboration, Cochrane Collaboration, and others databases that are relevant to social welfare. As well, select journals will be hand searched regularly to assure that correctly tagged articles are added to the database.

• Develop specialized electronic registries of reviews and meta-analyses and clustered randomized trials related to Social Welfare.

This registry will enable the Social Welfare Group to respond quickly to end-users inquiries about the effectiveness of interventions, and to avoid duplication when an existing review meets C2 Standards.

In several areas, cluster randomization is used (e.g., assessment of interventions related to housing, housing projects are often the units of randomization) rather than randomization of individuals. These types of studies required unique methods of analysis. A database of relevant studies and methodological issues related to this type of design will enable the group to respond appropriately to end-users.

• Identify an Editorial Team of 4-6 people to assist reviewers in all stages of the process from refining the question to submission of the final review to the Campbell database. See Flow Chart for Steps.

• Identify external reviewers for critiquing protocols and drafts of reviews

• Cooperate with the Methods Group to assure that one reviewer of each protocol/review has methods’ expertise.

The quality of C2 systematic reviews depends on the willingness of people from
different countries to contribute to the peer review of particular protocols and draft systematic protocols. Further, the team put together to edit any particular systematic review must include an expert in statistical methods.

- Develop alliances with relevant and interested end-users.

Alliances with groups such as national and international professional and interest groups will be important in assisting in selecting timely topics for reviews and in determining the effectiveness of dissemination strategies. See the Section on Progress for examples of such organizations.

- Assist in the development of the Campbell Collaboration Nordic Center.

The Campbell Nordic Centre will focus on developing systematic reviewing expertise among researchers and others in the Nordic Countries, and other parts of Western Europe. This will be carried out in collaboration with the Campbell Methods Group and experts from the UK, US, and elsewhere. It will develop formal and informal links with the School of Social Work at Lund. The Nordic Centre will assist the Social Welfare Coordinating Group in preparing an annual newsletter for circulation to the Executive and all members of the Coordinating Group.

Products

The Coordinating Group expects the following to be produced on account of its efforts.

- Five-ten reviews per year
- Specialized database of relevant reviews, meta-analysis, and cluster analysis
- Campbell Nordic Centre established
- Annual Newsletter

Key Personnel

The Social Welfare Group currently consists of an Executive and five subgroups. The Executive includes two Co-Chairs, a Coordinator position, Liaison to the Steering Committee, and seven-ten members at large. Currently, the Coordinator position is vacant. It is hoped that the Nordic Centre will fund this position.

Members at large will be sought through extending invitations to participants at the Campbell Colloquium. Once Executive Members are identified, a meeting will be held to determine the next steps for this group and to begin to operationalize/develop a work plan for the next three years.

5.6 C2 Education Coordinating Group: 2001-2004

The C2 Education Coordinating Group helps teachers, parents, students, school managers, and educational policy makers make well informed decisions about teaching and learning by putting the best available evidence form systematic reviews of educational research at the heart of educational policies and practice.

Main Activities

The Education Coordinating Group will engage in the following activities:

- Engage a Fulltime Coordinator

The successful implementation and delivery of the work of the Campbell Education Group depends upon the appointment of a full-time Coordinator. The tasks of this Coordinator will be:

- To agree with the Education Group’s Co-Chairs and its members on a strategy for developing and delivering the program of activities;
- To ensure the successful delivery of this program;
- To coordinate the various providers and users of the products of the Campbell Education Coordinating Group;
- To maintain regular communication with members of the Education Review Groups, other participants in the Campbell Collaboration, and the wider community of researchers, policy makers, and the public;
- To maintain the C2 Education Group’s web site and other means of communications.

- Establish and Develop Review Groups

Review Groups have already been established and will be further developed in twelve areas of educational policy and practice that are served by Campbell. Each will undertake a number of systematic reviews. These areas include:
• Mathematics Learning Review Group
• Science Learning Review Group
• I.T. Learning Review Group
• Work Related Learning and Transferable Skills Review Group
• Assessment and Learning
• Special Needs/Learning
• Comprehensive School Reform
• Leadership and Management Review Group
• Professional Education Review Group
• Economics of Education

• Develop Cross-Cutting Systematic Reviews

Educational interventions have consequences beyond test scores, grade-point averages and participation in labor markets. It is often held that education has effects, or should have effects, in terms of promoting better health and welfare, preventing crime, reducing poverty and dependence of various forms of welfare, and promoting civil society. The evidence for the effectiveness of educational interventions in these cross-cutting areas of public policy is often uncertain or non-existent. A major theme of the Campbell Collaboration, and its Coordinating Groups (Education, Crime and Justice, Social Welfare), is that high quality evidence from systematic reviews must be established in these cross-cutting areas, and that public policy and research must be more ‘joined-up.’ The Education Group will strive to produce such evidence, and to disseminate it as widely as possible.

• Improve the Methodological Basis of Educational Research

Educational research is often criticized (Hargreaves, 1996, 1997: Hillage et al, 1998; Tooley and Darby, 1998) for its methodological weakness and the poor quality of many of its primary studies. The Campbell Methods Group (see above) has already established high quality standards of methodological procedure for systematic reviews of primary research. The experience of the Campbell Collaboration’s sister organization in health care, the Cochrane Collaboration, is that over time these high methodological standards of systematic reviews increase the quality of primary studies.

• Widen the Network of Educational Research

Educational research has also been criticized for often being too parochial and not recognizing the wider, and more global, challenges facing teaching and learning. By working internationally on a collaborative basis, the Campbell Collaboration Group will endeavor to expand the horizons of educational researchers, teachers, learners, and policy makers and managers in particular countries, and to seek solutions that cross local, regional and national boundaries.

• Produce Systematic Reviews

The major product of the Review Groups will be high quality systematic reviews of the effectiveness of educational interventions. There are currently protocols for systematic reviews on:

• Truancy
• Voluntary Tutoring
• Peer-Assisted Learning
• Second Language Teaching and Learning
• Monetary Incentives and Education Achievement
• Teacher Induction and Mentoring

Additional protocols for reviews are anticipated from each of the above Review Groups. These include topics such as:

• The effectiveness of different methods of teaching and learning mathematics;
• The effectiveness of different methods of teaching and learning science subjects;
• The effective use of I.T. in different levels and types of teaching and learning;
• The most effective ways of teaching and learning for pre-school children;
• Effective ways of developing work-related skills;
• Effective ways of developing skills that can be transferred from learning environments to the world of work;
• Validity and reliability of assessment;
• Effective ways of teaching and learning for students with different needs and abilities;
• The effectiveness of different programs of comprehensive school reform;
• Effective leadership and management for professional groups (including teaching);
• The cost-effectiveness, cost-benefit and cost-utility of educational programmes and policies.

Reviews will be produced over a 12- 8 month period.

CEM Centre, University of Durham  http://cem.dur.ac.uk
• Develop User Networks and advise and support people using C2 Systematic Reviews

Evidence-based practice depends on a large number of people using research evidence to make well-informed decisions. Systematic reviews provide the strongest evidence of the effectiveness of interventions. Policy makers, practitioners, and the public need support and advice on what constitutes a systematic review, how they are produced, and how they can be used effectively and efficiently.

• Advise and support people doing C2 Systematic Reviews

The production of systematic reviews is a specialist area of expertise. The Campbell Collaboration is extremely well placed to provide this expertise, advice, and support through training and professional development of people interested in doing systematic reviews.

• Additional Education Review Groups

The existing Review Groups of the Campbell Education Group are responses to current demands from the educational market place, and the interests and expertise of present members of the Campbell Collaboration. These will undoubtedly expand as new demands are made for best evidence by teachers, students, parents, educational policy makers and managers, as the interests and expertise of the Collaboration grows.

• Develop a Registry of Controlled Trials in Education

The development of a specialized registry of randomized and nonrandomized trials falls within the ambit of the Education group. The registry’s development will be in cooperation with the Secretariat, and will exploit and add to C2-SPECTR (see above).

• Develop a Registry of Systematic Reviews and meta-Analyses

A specialized electronic registry of reviews and meta-analyses in Education is also being planned. Such a registry is important to avoid unnecessary duplication of efforts. It permits Campbell Collaboration members to respond briskly to end-users’ inquiries about effectiveness of certain interventions, if indeed the interventions have been subjected it systematic review. Developing the registry and system for assuring links to end-user questions will be done during 2002-2004 with the cooperation of the Secretariat and the Communications and Dissemination Group.

• Develop a Website Newsletter

The Campbell Education Group must establish and maintain good means of communication with its members and with the broader community of policy makers, practitioners, and the public. It must also become a major focus of high quality evidence on effective interventions in the educational field. The Campbell Collaboration’s published systematic reviews will be one way of doing this. Another way will be to establish and maintain an Education Group website. This will be hyper-linked to other sections of the Campbell website as well as to other key websites of educational research and evaluation.

• Generate Resources for Meetings

The Education Group is represented on the Steering Group of the Campbell Collaboration, which meets three times a year. One of these meetings is at the Annual Colloquium of the Collaboration. The other meetings are evenly distributed through the rest of the year. Resources are required for travel and subsistence for the Education Group representative of the Steering Group.

Expected Products

The products of this effort include the following:

• Ten to fifteen systematic reviews each year, published on the website
• Ten to fifteen protocols each year, published on the C2 website
• A director of the education groups’ collaborators
• Quarterly website newsletter linked to the main C2 website and related site
• Strategic alliances with end-user groups and creation of related mail lists
• Specialized registries of education-related randomized trials with links to other registries
• Plans, minutes, and proceedings of meetings posted on the web sites

Key Personnel

Key personnel in this include Co-chairs of the Education Coordinating Group, Philip Davies and Kent McGuire, individuals responsible for overseeing production of systematic reviews such as Phil Davies, Robert Boruch, Rebecca Maynard, and the
particular individuals who will produce the reviews. A Coordinator for the Group is being sought.

6. Appendices

- The Campbell Collaboration’s Progress
- C2 Publications and Reports During February 2000 – February 2001
- Steps in the Review Process
- Organizational Chart

Appendix: The Campbell Collaboration’s Progress

In 1998, members of the Cochrane Collaboration in health care, including Sir Iain Chalmers, Philip Davies, and others discussed the possibility of creating a sibling organization that would focus on the social sector. Chalmers then met with Robert Boruch to further discuss the possibility and Boruch agreed to dedicate time to reconnaissance.

On July 14-15, 1999, about 70 people from five countries met in London to explore the desirability of a Campbell Collaboration. Iain Chalmers, of the Cochrane Collaboration in healthcare, and Bob Boruch, of the University of Pennsylvania, chaired the meeting.

The attendees included funders, professional researchers, policy people, teachers, and social workers. Sir Michael Peckham of the School of Public Policy, University College London, provided the resources for the meeting at the University. This meeting led to:

(a) agreement to form an international Campbell Collaboration to prepare, maintain, and update reviews;
(b) creation of a Steering group that includes Robert Boruch (Chair), Iain Chalmers (Liaison with Cochrane), Philip Davies (UK Kellogg College, Oxford), Haluk Soydan and Karin Tengvald (Swedish Center for Social Work Evaluation and Research);
(c) pledges of support from participants to contribute to Review Groups, Methods Groups, and in other ways;
(d) creation of a sponsors’ group that includes the UK Department of Education and Employment, UK Economic and Social Research Council, and Smith Richardson Foundation, among others, whose staff were at the meeting;
(e) agreement to explore strategic alliances with consumers of such reviews; and
(f) agreement plan for an inaugural working meeting in Philadelphia, in February 2000, at the University of Pennsylvania.

Some of the proceedings of the meeting are posted on the C2 web site http://campbell.gse.upenn.edu.

The Campbell Collaboration was created at a working inaugural meeting in February 2000. This meeting’s venue was the University of Pennsylvania in Philadelphia (US). University Deans Susan Fuhrman of the Graduate School of Education, Ira Schwartz of the School of Social Work, and Kathleen Jamieson of the Annenberg School of Communications supported the cost of the meeting. A planning grant from the U.S. Department of Education’s Planning and Evaluation Services, under the direction of Alan Ginsburg, supported reconnaissance studies that led to the meetings. Further, the Smith Richardson Foundation made a planning grant to support exploratory work on the Collaboration.

This working inaugural meeting led to the following:

(a) formal agreements to and expressions of interest to contribute to an international Campbell Collaboration that would prepare, maintain, and make accessible systematic reviews of studies of the effectiveness of interventions.
(b) agreement to focus first on randomized trials and second, on nonrandomized trials to understand relative effects of interventions
(c) formation of special groups on methods, education, social work and social welfare, crime and justice, and dissemination and technology.

On behalf of the Steering Group in the year 2000, Philip Davies (UK), a representative of the C2 Education Coordinating Group, sought and obtained Rockefeller Foundation support to permit the C2 Steering Group to meet once each year for three years at Villa Serbellonia, Bellagio, Italy. These meetings will be held within two months of the annual C2 Colloquium. The main purposes of such meetings are to follow-up on decisions reached at the annual Campbell
Collaboration’s meeting, explore new initiatives, and identify problems and possible solutions to the problems.

Members of the C2 Steering Group, the Secretariat, and the Chairs of C2 Methods Groups met in Cape Town, South Africa (October 2000), at the Cochrane Collaboration Annual Colloquium. The purpose was to learn more about Cochrane procedures, plan the first Annual Campbell Collaboration meeting, and coordinate with Cochrane people who have an interest in Campbell. Dorothy deMoya, Harris Cooper, Jennie Popay, Haluk Soydan, Helen Thomas, David Myers, Robert Boruch, and Larry Hedges participated in the Cape Town meeting. Boruch made a plenary presentation on behalf of C2. He invited people to suggest collaborators from developing countries.

Methods Group Campbell Collaborators in the US and UK, Harris Cooper, Larry Hedges, David Myers, and Jennie Popay, developed proposals and received planning funds from the Smith Richardson Foundation and ASPE. Their meetings and work with others resulted in (1) by-laws for the operation of the Methods Groups, (2) formal plans for registering new C2 methods groups, and (3) a set of guiding principles for the production of protocols (plans) for C2 systematic reviews. The principles were approved by the C2 Steering Group for a period of 18 months. The Protocol Guidelines and an example of a protocol, “Scared Straight” by Petrosino and others, are posted on the website (http://campbell.gse.upenn.edu).

During the year 2000, Julio Sanchez-Meca and colleagues at Universidad de Murcia (Spain) sought and obtained resources for the creation of a Unit for Meta-analysis at the University. This is an important step toward creating a Campbell Collaboration Center in the Mediterranean region. The Spanish Unit’s creation was made public at the C2 Annual meeting (2/23/01) and will be supported by Campbell Collaborators.

The C2 Crime and Justice Coordinating Group and advisory committee, chaired by David Farrington (UK), sought and received planning grant funds from the British Home Office during a meeting of the International Criminological Society in Paris (May 2000). The funding to Cambridge University and to the American Academy of Arts and Sciences is being used partly to support the Coordinator for the working group, Anthony Petrosino (US). The Home Office’s provision of seed money for protocols and the Crime and Justice Group’s proactive approach to generating protocols has resulted in the production of about a dozen protocols. These are plans for systematic reviews of studies on cognitive behavioral interventions for offenders (Lipsey et al, 2000), “Scared Straight” programs (Petrosino et al, 2000), street lighting strategies, boot camps, and other topics.

Members of the C2 Social Welfare Review Coordinating Group, under Haluk Soydan’s (Sweden) guidance, sought and received a planning grant from the Swedish Council for Social Research. With the Council’s support, Soydan, Macdonald (UK), Boruch (US), de Moya (US), and Olsen (Denmark) contributed to meetings (January 2001) organized in Oslo, Copenhagen, and Helsinki to engage the interest of about 100 colleagues in the Nordic countries. These meetings produced written commitments from the Ministries of Social Affairs in Denmark and Norway to plan for a Nordic Campbell Center in Copenhagen. The commitment was officially announced at the First Annual C2 Meeting in February 2001. It was reiterated and explained by Soydan at the C2 Steering Group meeting in April 2001 at Bellagio.

In the United States, John Schuerman (US), Haluk Soydan (Sweden), and others met in Atlanta with members of the Society for Social Work and Research (January 2001) to describe C2 and to explore an alliance between the Society and the Campbell Collaboration. Haluk Soydan (Sweden) was invited to address the European Association of Directors of Social Services in June 2001. This is to understand users’ interests in C2 Reviews.

On behalf of the C2 Education Review Coordinating Group and as part of the C2 Secretariat, Boruch initiated discussions with young scholars to develop protocols for C2 systematic reviews in education on truancy programs (Menaker, 2000), peer assisted tutoring programs Ginsberg-Block and Rohrbeck (2001), impact of recent welfare reforms on children (Perry, 2000), and HIV risk reduction programs for Hispanic males (Egues, 2000), college student tutoring programs (Ritter, 2000), education related monetary incentives for children at risk, and bilingual program variations. Peter Smith
UK, 2000) developed a protocol for a sizeable review on modern second language training. Support is being sought for systematic reviews on each of these topics. The draft protocols are now being reviewed by Collaborators; copies of the draft are available and will be accessible on the C2 web site.

Funding for a pilot post-doctoral Fellowship program was sought from and awarded by the Robert Wood Johnson Foundation. The Fellows will be involved with C2 people in education and all other arenas as well as with the Foundation and Penn people (http://campbell.gse.upenn.edu). Laura Leviton is the Senior RWJF Officer for this pilot. Vivian Gadsden (US) developed a post-doctoral program, in which C2 has a small role, which will be submitted to the Spencer Foundation.

On behalf of the Collaboration, the C2 Secretariat took charge of an electronic archive of randomized and possibly nonrandomized trials developed by the Cochrane Collaboration. In 2000, this Social, Psychological, Educational, and Criminological Trials Registry (SPECTR) contained over 10,000 entries (Petrosino, Boruch, Rounding, McDonald, and Chalmers (2001). One month from the hand-over of the file from the Cochrane Collaboration to the Campbell Collaboration, more than 200 new verified randomized trials were added to this registry, which is now known as C2-SPECTR. Robert Boruch (US), Anthony Petrosino (US), Christine Leow (Singapore), Henry May (US), Jeremy Grimshaw (UK), and other collaborators contributed to this effort. Entries to the registry include a new class of studies, cluster randomized trials, in which entities are the units of allocation and analysis.

On behalf of the Campbell Collaboration and with the assistance of the C2’s Secretariat, philanthropist Jerry Lee (US) sought and obtained pro bono legal assistance from Astor, Weiss, Kaplan, and Rosenblum to create a legal entity called the “Campbell Collaboration-a Nonprofit Corporation.” The corporation exists as of 1/3/01. Its status as a tax-exempt organization 501(c) 3 is under review by the US Internal Revenue Service.

The C2 Secretariat developed financial guarantees and plans for the First Annual Campbell Colloquium in February 2001 with counsel from the C2 Steering Group and others during meetings in Cape Town, South Africa (10/00) and thereafter. As part of the larger effort, an email list of people interested in C2 has been compiled and is being continuously updated by Gema Barkanic. The Annual meeting was organized by the Secretariat’s Executive Officer, Dorothy de Moya, who negotiated with for-profit entities and marshaled voluntary resources. See http://campbell.gse.upenn.edu for agenda, presentations, etc.

Since the Collaboration’s working inaugural meeting in February 2000, C2 collaborators have also produced research and research articles on C2, C2’s anticipated reviews, and C2’s role in international cooperative research. The papers are in press, published in professional and scholarly journals, or are in preparation for invited publications. They include: Petrosino et al (2001); Boruch, Snyder, and de Moya (2000); Boruch, et al (2001); Soydan (2000); Schurman et al (2001); Farrington and Petrosino (2001); Petrosino (2000a); Petrosino, Turpin-Petrosino, and Finkenauer (2000); Petrosino (2000b); Farrington, Petrosino, and Welch (2001); Petrosino (2000c); Boruch and May (2001); Boruch (2001); Petrosino (2000d); Cooper (2000a, 2000b, 2001); Leow and Boruch (2001); Sheu (forthcoming), Petrosino, Boruch, Farrington, Sherman, Weisburd (2001), Tutomi (2000); Sheldon and Chivers (2000); Sutton et al (2000); Cheek (2002).

C2 Publications and Reports during February 2000-February 2001


Appendix: Steps in the Review Process

The first step in producing a systematic review is the development of a protocol (plan). Protocols for a C2 Review may be invited or they may be submitted spontaneously. The invitational model is illustrated by the Crime and Justice Review Group’s steering committee’s eliciting reviews on 15 selected topics from 15 experts in year 2000. Seed money from the UK Home Office was used as an incentive.

The topics for possible Crime and Justice reviews were identified by members of the Crime and Justice Steering Group, its larger advisory group, and counsel from other collaborators. The first standard for selecting topics included the fact that the topic was newsworthy and relevant to policy, but evidence was unclear or studies had not been reviewed systematically. A second standard is that good studies are known to exist but have not been systematically reviewed. The people who were invited to do the reviews are experts in the topical areas that they will review.

“Spontaneous” submissions are exemplified by researchers who develop a protocol and provide it to the relevant C2’s Review Group for comments. (See the section entitled Progress). This approach is being tried out by some members of the Education Review Group. The target reviewers are young people who know a lot about a particular topic, such as trials on voluntary tutoring.
programs, who are interested in capitalizing on the opportunities presented by doing a C2 systematic review.

Developing a formal C2 protocol for the review involves specifying details about the question that is addressed and how hand searches of literature and machine based searches of which registries and archives will be carried out. It requires reviewers to give details about prior pilot work on the topic including references to studies, identify people who can collaborate in production and editing, including expert librarians, financial, academic, and political conflicts of interests.

See http://campbell.gse.upenn.edu for protocol guidelines and examples of protocol contents.

In the second step, the protocol is submitted to the relevant Review Group. It is then reviewed by its members, by the members of Review group’s Editorial Group, and by Methods Group people for substantive and methodological quality. It is also vetted to determine whether the protocol is unnecessarily duplicative or poses conflict of interest problems. This protocol would also be vetted in workshops run by the proposed Methods Center on Systematic Reviews to assure that reviewers can take advantage of the technical state of the art in producing the review.

The third stage in the process involves the publication of the review protocol on all C2 web sites for comment. The sites are public. They will be linked to people who are users of the evidence generated in a systematic review.

During the fourth and longest stage, the proposed systematic review is developed over eight or more months if the review is modest. That is, hand searches of the literature and machine-based searches are undertaken, studies reviewed and screened against criteria for inclusion, and drafts written. This includes requesting additional information, including micro-records from original authors. Assigned editors from the relevant editorial review groups review first drafts within two months of receipt of papers.

In the fifth stage, “final” drafts of the review are produced and resubmitted to the editors for further revision. The finished review is then put up on the Campbell Data Base of Systematic reviews. New trials uncovered by the review are added to C2 SPECTR and to other proposed C2 registries.

Under this schedule, a deep C2 systematic review of a modest topic can take 12 – 18 months. The depth is important to quality. Time is essential for quality. If the deep review concludes that no substantial evidence is available, then the review might be produced in 6 months or less.

We expect reviews to be updated every two years. An abbreviated sequence of the sort just described is used for updating reviews.

Once the exceedingly detailed Systematic Review is published on the web site, communications about the contents of the review become paramount. Earlier stages of production would have included possible end-users as editors (for example). These people and intermediary organizations would then be engaged to assure that end-users are: aware of the review; understand its contents; and have the opportunity and perhaps the incentives to use the results.

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Steps in conducting a systematic review*

1. Formulate review questions
2. Define inclusion and exclusion criteria
   - Participants
   - Interventions and comparisons
   - Outcomes
   - Study designs and methodological quality
3. Locate studies
   Develop search strategy considering the following sources:
   - The Campbell Controlled Trials Register (C2-SPECTR)
   - Electronic databases and trials registers not covered by C2 SPECTR
   - Checking of reference lists
   - Hand searching of key journals
   - Personal communication with experts in the field
4. Select studies
   - Have eligibility checked by more than one observer
   - Develop strategy to resolve disagreements
   - Keep log of excluded studies, with reasons for exclusions
5. Assess study quality
   - Consider assessment by more than one observer
   - Use simple checklists rather than quality scales
   - Handling of attrition
   - Consider blinding assessors to authors, institutions and journals
   - Assess randomization and power
6. Extract data
   - Design and pilot data extraction form
   - Consider data extraction by more than one extractor
   - Consider blinding of extractors to authors, institutions and journals
7. Analyze and present results
   - Tabulate results from individual studies
   - Examine plots
   - Explore possible sources of heterogeneity
   - Consider meta-analysis of all trials or subgroups of trials
   - Perform sensitivity analyses, examine funnel plots
   - Make list of excluded studies available to interested readers
   - Examine Process/Implementation of Interventions
8. Interpret results
   - Consider limitations, including publication and related biases
   - Consider strength of evidence
   - Consider applicability
   - Consider statistical power
   - Consider economic implications
   - Consider implications for future research

NOTE: *Points 1 – 7 should be addressed in the review protocol*