

## **Quasi-Experimental Design Studies Group Application**

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### **Background**

Ideally, many of the primary studies that will be used as part of the research synthesis activities of the Campbell Collaboration's review groups will be based on findings from high-quality randomized field trials. However, much of the research in the social sciences is based on designs that are not predicated on random assignment of individuals or other entities to treatment and control groups. These "nonexperimental" designs are often referred to as quasi-experimental designs or nonrandomized designs. Within this broad categorization of designs, we often find econometric modeling, matching procedures, and the use of interrupted time-series designs. A comparison of results from studies based on quasi-experimental designs with results of studies based on random assignment, often shows that the former produce biased and inefficient impact estimates. For example, comparisons made by Maynard and Fraker showed widely different results when random assignment was used and when matching procedures were used to estimate the impacts of training programs. More recently, proponents of quasi-experimental studies have suggested that when they are done well, results may be similar. Because of the abundance of information generated from quasi-experimental designs and because of the need to use such designs in some social settings, it is critical that consumers of this information know when such designs produce credible evidence and when the evidence should be interpreted cautiously.

The proposed Quasi-Experimental Design Studies Group will advance the goals of the Campbell Collaboration by:

Conducting empirical studies that help to assess the "performance" of various designs  
Providing advice to review groups and to individual researchers on the use of findings from quasi-experimental study designs as data for research syntheses  
Serving as a forum for discussing alternatives to the use of random assignment for estimating program impacts

#### **1. Conducting Empirical Studies and Preparing Research Syntheses**

Because so much of the social science research is based on designs other than random assignment, determining what designs can produce credible evidence and the conditions under which these designs will work well is a critical activity for the Campbell Collaboration. Although some advocates for random assignment designs suggest that quasi-experimental study designs are ineffective research tools, there are others that now suggest that quasi-experimental studies, when done correctly, can generate similar answers. Right now, our thinking is that the Campbell Collaborations' substantive review

groups can be best served if the QED Group conducts empirical studies and meta-analyses that allow one to assess the performance of various designs. Empirical studies, for example, may be used to compare the results from a randomized experiment with results from a comparison group study in which one finds potential comparison group members, after the fact, that can be matched with the treatment group from the randomized study. Such an empirical study allows one to directly compare the results from a randomized experiment with those of a non-randomized experiment. There are several examples of empirical studies that are already underway; these include reanalyses of the Tennessee STAR data on the impact of classroom size on students' achievement by Robinson Hollister, results from a randomized experiment on the impact of dropout prevention programs on students high school graduation and related outcomes by Roberto Agodini and Mark Dynarski; and impacts of welfare-to-work programs by Howard Bloom, Charles Michalopoulos, and Suk-Won Lee. Although the conduct of these and other empirical studies is important for generating knowledge about the performance of different designs, it is limited because it is almost impossible to look at the performance of different designs under different conditions. This work can most easily be accomplished by using meta-analysis techniques to systematically combine findings from multiple studies that use different designs and focus on different interventions. Results from the meta-analyses would serve as the empirical data for a research syntheses that would be prepared according to the Campbell Collaboration's guidelines. It would be expected that the results of the systematic reviews could be used by the review groups within specific policy areas, such as education, social welfare, and criminal justice, to help inform them about the potential limitations of specific designs under various conditions. Furthermore, the systematic reviews should be used as evidence when deciding which studies should be admitted to the C2-SPECTRE database. Finally, the QED Group would expect that evidence from the systematic reviews and empirical studies could help shape the design of future evaluations conducted by university researchers and government agencies. Like all C2 reviews, the QED reviews would be widely disseminated through the C2 library and in print.

## 2. Providing Advice on the Use of Quasi-Experimental Design Studies and Statistical Policy

The QED Group will provide advice to review groups and to individual researchers on the use of findings from quasi-experimental study designs as data for research syntheses. This will include advice on potential conditions that may influence the credibility of the findings derived from the application of specific quasi-experimental study designs. For example, some designs may be particularly vulnerable to biases when members of a comparison group are selected from the same community or school as the program participants. We also expect that the QED Group will provide advice to the Campbell Collaborations' Steering Group on matters that concern, for example, including or excluding studies from the C2 database, C2-SPECTRE.

## 3. Creating a Forum for Discussing Alternatives to the Use of Random Assignment for Estimating Program Impacts

The QED Group will serve as a forum for discussing the estimation of program impacts through the use of quasi-experimental study designs and the implications of this approach

for conducting research syntheses. We would expect that recent advances in the design of quasi-experimental designs would be reported in the Methods Group newsletter. Besides new advances in the design of quasi-experimental designs, we would plan on reporting on new studies that assess the performance of non-experimental designs. Considerable effort will be made this year to recruiting participants from outside the USA for the QED Group.

### **Plan for Achieving Goals**

To achieve the three goals just described, the QED Group has developed six short-term objectives:

#### **1. Organizational Meeting of the Campbell Collaboration**

We will organize a first meeting among the initial members of the Campbell Collaboration who have expressed an interest in the QED Group. The goal of the first meeting is twofold. First, we will approve a set of rules for the operation of the QED group (e.g., procedures for establishing review groups within the QED). Second, we will develop a short-term agenda and a longer-term agenda. Developing the agendas will involve obtaining commitments from individuals to work on specific projects and to undertake specific activities (e.g., organizing and preparing materials for the Methods Group newsletter, conducting empirical studies, undertaking meta-analyses that compare results from randomized designs and quasi-experimental designs, developing guidelines for assessing the performance of quasi-experimental designs relative to randomized designs).

#### **2. Quasi-Experimental Studies Bibliography**

To facilitate the work of the QED Group, it will be important to assemble a bibliography of the following materials: (1) methodological studies in which quasi-experimental and randomized studies are directly compared and (2) meta-analyses in which the quality of program impacts obtained from quasi-experimental designs relative to randomized designs is assessed. Because the materials in these bibliographies may also appear in the bibliographies that will be established by review groups within the C2, we plan to coordinate this activity with the other groups. A strategy for coordinating these activities will be discussed at the first annual meeting in Philadelphia.

#### **3. Host a Plenary Session in Philadelphia on the Theory and Application of Quasi-Experimental Designs**

We are already helping the Campbell Collaboration's Steering Group organize this session. Right now, we have arranged with Donald Rubin to be one of the presenters. Other candidates include David Card, Robinson Hollister, and Alan Kruger.

#### **4. Coordination with other Methods Groups**

It will be important to coordinate the activities of the QED Group with those of the other methods groups. For example, the statistics group may be asked to advise on techniques for combining results from randomized trials and quasi-experimental design studies. In doing, so they may find it important to know about the most recent evidence concerning

the performance of the various approaches for computing impacts. To facilitate the coordination of the QED group with the other methods groups, we will include each of the methods groups conveners on the distribution list for the minutes that are prepared for each of the meetings. Furthermore, we will work with the other methods groups to ensure that at least one representative from each group participates in the QED group.

5. Financial Support Strategies for obtaining financial support for the QED Group are under consideration. Right now, the QED Group has a small grant from the Smith Richardson Foundation. These funds have been used to cover a variety of costs, including the preparation of the registration materials for the QED Group for C2, attending organizational meetings for C2 and the Methods Group, assembling a plenary session for the upcoming C2 meeting in Philadelphia, and review of the C2 Protocol Guidelines. It is expected that additional support will be needed for several activities. One activity with immediate pay-off for C2 would be a synthesis of findings from the three empirical studies now underway. The empirical studies will be completed later in 2001 and could be summarized very quickly. At the same time, the QED Group could begin to assemble a bibliography for later meta-analyses. At this point it is too soon to provide an estimate of the cost of these activities and other work associated with the running of the QED Group; however, quickly after the organizational meeting in February 2001 in which a short and longer term agenda are agreed upon, we should be able to assess the level of effort needed for the first year of funding for the QED Group.

#### 6. QED Group Conveners

At present, David Myers is the convener of the QED Group. Ideally, a second convener from outside of the United States will be identified in the next few months.

Dr. Myers is a Senior Fellow at Mathematica Policy (MPR), a Princeton based social policy research firm. Dr. Myers received his Ph.D. in Sociology in 1980 from Washington State University (resume attached). For the past nine years he has been a Senior Researcher and Senior Fellow at MPR. His areas of expertise include the evaluation of education programs, research design, and statistical analysis. He has designed and directed some of the largest random assignment evaluations of education programs in the United States. Furthermore, he has conducted numerous evaluations and studies that have used quasi-experimental designs. Dr. Myers has published numerous reports and articles in referred journals, such as *Sociology of Education*. Furthermore, he has served on an advisory panel for the Robin Hood Foundation for a research study designed to look at the economic costs and social consequences of teen pregnancy. He is currently working with Henry Levin's Center for the Study of Privatization in Education, at Columbia University. For the center he has prepared a paper that describes a set of guidelines for evaluating results from educational voucher evaluations. Dr. Myers has been a reviewer for several academic journals, such as *Sociology of Education* and *Sociological Methods and Research*.