Award no. H519255005

Award Holders: Prof. H. Goldstein

Title: Advanced training workshops in multilevel modelling

Full Report on Research Activities and Results

Advanced training workshops in multilevel modelling - Full report

Aims

The multilevel models project has established collaborations with a number of groups working in substantive areas and the proposal for a series of advanced training workshops is built around those collaborations and the perceived need for subject matter specialists to become involved in modelling of data in their area of interest.. The project planned five 2 day workshops. Each workshop had the same basic format with local variations to suit the subject matter and participants: as follows.

1. An introduction to one or more datasets which formed the basis for 'hands on' data exploration during the course of the workshop. This was given by a researcher in the substantive area.
2. An introduction with example analysis to the software to be used, namely MLwiN.
3. The participants (12-15) have been encouraged to provide their own data in addition to the workshop examples and to carry out investigations of various issues arising from their research questions.
4. The workshops proceeded, via example data sets, to explore various modelling issues.
5. Participants were encouraged to make presentations of their own data analyses
6. Each workshop was organised by a researcher in the relevant substantive area, with experience of multilevel modelling. They had the responsibility of issuing invitations and planning the programme.
7. All workshops were held at the Institute of Education where adequate computing facilities were available. Members of the Multilevel Models Project were present at all the workshops to assist with technical questions, help participants with their analyses, and ensure that any software problems were fixed.
8. By the end of the workshop participants were expected to have acquired an understanding of ways in which multilevel modelling can be of value in the substantive area and be able to undertake their own analyses.

Topics

The following is a list of topics, dates and organisers

Topic	*Organiser*	*dates*
Education	Harvey Goldstein	2-3 Feb, 1998
Environmental economics	Ian Langford	18-19 March 1998
Health services data	Alastair Leyland	7-8 May 1998
Political science	Anthony Heath	15-16 October 1998
Demography	Ian Diamond	2-3 March 1999.*

*This workshop was postponed from 3-4 December 1998. With ESRC approval the project end was changed from 31 December 1998 to 31 March 1999.

Each workshop attracted between 12 and 15 people. These were largely academics with a sprinkling of government researchers. The common format was as follows.

- Introduction to data sets for analysis
- Introduction to new *MLwiN* software
- Individual exploration of data sessions interspersed with group discussions
- Demonstration of advanced modelling techniques by a member of the multilevel models project; e.g. cross-classifications, multiple membership modelling, multivariate binary response models.
- Work on participants' own data sets
- Final discussion session and presentations by participants

Evaluation

Evaluation sheets were completed by most participants (a blank sheet is attached). The mean overall rating from the workshops, on a 11 point scale from 0='very bad' to 10='excellent', was as follows.

Workshop	**Mean rating**	**Number of evaluation forms**	**Number of participants**
Education	8.0	4	14
Environmental economics	-	-	12
Health services data	8.2	2	13
Political science	8.3	7	11
Demography	7.8	12	18
Overall	8.1	25	68

Due to an oversight the evaluations for the second workshop are missing. Nevertheless, the overall rating of 8.1 indicates a high degree of satisfaction.

Many participants were impressed with the range of data types and structures that multilevel modelling could address. They appreciated the fact that the instructors at the workshops were acquainted with the subject matter and able to offer constructive suggestions. It was felt to be particularly important that there was 'hands on' experience, rather than merely a class level presentation. Some participants felt that an extra day would be useful. It was also felt that the software equation interface, while unfamiliar, was a help in understanding the modelling process.

The workshop organisers attracted a well motivated group of participants who had had some experience of multilevel modelling already. They all left the workshops feeling that their understanding had been enhanced and that they should be using these advanced techniques in their own work.

Recommendations

The experience of these workshops has been that concentrating on a particular subject area, with researchers well versed in that area results in a great deal of learning taking place. If such workshops are to be held in the future, it is suggested that 3 or even 4 days is more appropriate, which would also allow more time for participants to work on their own data. Many participants felt that they needed more time. Almost all the participants came from the UK, but opening the workshops to Europe and possibly North America would be useful. If this were to be done, it would be desirable to find resources to provide travel, and possibly accommodation costs.

As a result of interacting with leading quantitative researchers several collaborations have been started and it is anticipated that these will be consolidated and lea in some cases to requests for research funding.

The Multilevel Models Project team, who took part in all the workshops, found the experience very valuable and the views of participants will help to shape the future design of software, the direction of methodological developments and dissemination activities.

Having the Institute of Education as a location worked well. Computing facilities are now adequate and help is available if needed.

Harvey Goldstein
21 August 2000