Regional Quantitative Methods Workshop, Ohrid, Macedonia. CARE International, Middle East and Europe Regional Management Unit (MERMU).

John Mazzeo, DePaul University

Available at: https://works.bepress.com/jmazzeo/42/
REGIONAL QUANTITATIVE METHODS WORKSHOP

16 – 20 FEBRUARY, 2004
OHRID, MACEDONIA

Workshop Highlights

Contact: Mary Picard
Regional Program Advisor
INTRODUCTION

This purpose of this regional workshop was to familiarize participants with “the essentials” for using quantitative methods to measure project-level indicators and arrive at meaningful results. The workshop targeted M&E coordinators or point persons in Country Offices who would be able to make effective use of the methods.

Workshop Content:

Roughly, the workshop was intended to cover all phases of conducting research for a baseline, evaluation, or special study as shown below:

1. Research design – formulating a research question (and relationship to indicators); selecting an appropriate research design
2. Quantitative vs. Qualitative methods – brief introduction on the differences between qualitative and quantitative methods and their uses
3. What is a quantitative survey
4. Planning and designing a quantitative survey
5. Sampling – types of sampling, selecting sample type and size
6. Designing a good questionnaire (inc. coding)
7. Pre-testing the questionnaire
8. Guidelines for conducting the fieldwork (how to train enumerators)
9. Use of SPSS for data entry and statistical analysis
10. How to report and show results

During the planning phase it was decided the workshop should be extended for 5 days rather than the originally proposed 3 days, owing to the complexity and breadth of the subject matter. Please see Annex 1 for the Workshop Agenda.

The workshop training was given by John Mazzeo¹ from TANGO International and assisted by Mary Picard, MERMU Regional Program Advisor.

The workshop was hosted by CARE Macedonia and held at the Bellevue Hotel in Ohrid.

PARTICIPATION

Country Offices were invited to send a maximum of two participants to the workshop. The senior management of each CO was first asked to fill nomination forms for review by the Regional Program Advisor to ensure the appropriateness of the training for the proposed participants (see Annex 2 for nomination form). However, not all COs responded in due time with nomination forms for a proper review to be done. In some cases, there was discussion between the CO and MERMU on the choice of nominees but this could not be done for all participants. Partly a function of the diversity of the capacity in the region, the skill level amongst workshop participants was in the end quite wide-ranging.

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The facilitators did a “relevancy check” mid-way into the workshop to see whether participants had a clear idea of how they would or intended to use the skills they would gain. This was done by having them answer 3 questions on paper. About half the participants had a very general idea of what they would do, while half could relate the skills to specific project tasks that were current or planned.

Not all COs chose to send participants and two COs – Jordan and Yemen – had staff did not make it to the workshop because of weather conditions (in Jordan) and travel difficulties in the case of Yemen.

The total number of participants was 11. The countries that attended and respective numbers of participants included:

- Kosovo – 3
- Macedonia – 2
- Bosnia-Herzegovina – 1
- Bulgaria – 2
- Caucasus – 2
- Egypt – 2

Kosovo sent an additional staff person who provided the project dataset that participants used to practice SPSS. Please see participant list, Annex 3.

As the participation of the Middle East COs was so low – only one out of the 5 attended – MERMU is considering holding a repeat workshop in Cairo later in the fiscal year offered to our Middle East staff.

**RESOURCES**

The trainer supplied participants with a CD-ROM at the end of the workshop that contained a large number of documents of potential use to other COs and staff as well. The broad categories of materials include:

- Lecture notes, Powerpoint presentations, participant notes, and handouts from the workshop
- Training guides on SPSS provided by CARE Kosovo (the CO had a training in SPSS from a local firm the year before)
- The Kosovo data in SPSS with the questionnaire
- A bibliography on quantitative research methods
- 25 electronic documents relating to M&E and quantitative methods

These materials can be requested from the Regional Program Advisor, however, they will be posted to the DME website:  [http://www.kcenter.com/care/dme/](http://www.kcenter.com/care/dme/)

**RESULTS**

**Test Results**

Participants were given a pre-test on their knowledge of quantitative research which was repeated at the end of the workshop (post-test) (see Annex 5). The results show that all participants gained an understanding of the basic concepts in quantitative research. Pre- and post-test scores are as follows (a perfect score was 31):
The pre-test scores ranged between 10 (32%) and 26 (84%) with an average score of 51% correct. After the 5-day workshop was complete, each participant took a post-test. The post-test scores ranged from 18 (58%) to 31 (100%) with an average score of 86% correct. Overall, there was a 33% improvement in knowledge about quantitative research methods. The figure below summarizes the above pre and post test table.

Annex 5 provides a copy of the pre/post test and it highlights improvements by question.

**Workshop Evaluation Results**

Please see Annex 4 for the evaluation form filled by participants. The evaluation results are presented below. Rankings were based on a scale of 1 to 5, 1=not at all,
2=a little, 3=somewhat, 4=fairly, 5=very. Only question 2 below had a scale of 1 to 3, 1=less than half, 2=about half, 3=more than half.

<table>
<thead>
<tr>
<th>No.</th>
<th>Question Posed</th>
<th>Total Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How relevant was this workshop to your work?</td>
<td>4.4</td>
</tr>
<tr>
<td>2</td>
<td>How well do you feel you understood the subject matter covered in this workshop?</td>
<td>2.8</td>
</tr>
<tr>
<td>3</td>
<td>How would you rate the quality of the sessions overall?</td>
<td>4.1</td>
</tr>
<tr>
<td>3a</td>
<td>Day 1, research design</td>
<td>4.0</td>
</tr>
<tr>
<td>3b</td>
<td>Day 2, data collection and best practices</td>
<td>4.3</td>
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<tr>
<td>3c</td>
<td>Day 2, sampling</td>
<td>4.3</td>
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<tr>
<td>3d</td>
<td>Day 3, Kosovo project introduction</td>
<td>4.0</td>
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<tr>
<td>3e</td>
<td>Day 3, descriptive statistics</td>
<td>3.8</td>
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<tr>
<td>3f</td>
<td>Day 4, interpretive statistics</td>
<td>4.3</td>
</tr>
<tr>
<td>3g</td>
<td>Day 5, research project and reporting</td>
<td>4.1</td>
</tr>
<tr>
<td>4</td>
<td>How effective were the training methods (mix of presentation, small group work, different ways of reporting out) in helping you to understand the subject matter?</td>
<td>4.1</td>
</tr>
<tr>
<td>4a</td>
<td>What could have been done differently to make it more effective?</td>
<td>See below</td>
</tr>
<tr>
<td>5</td>
<td>How helpful did you find the materials used?</td>
<td>4.6</td>
</tr>
<tr>
<td>6</td>
<td>How would you rate the trainer in terms of how clear he was in presenting the material?</td>
<td>4.4</td>
</tr>
<tr>
<td>7</td>
<td>How well do you feel you will be able to apply the concepts and tools learned in this workshop?</td>
<td>3.9</td>
</tr>
<tr>
<td>8</td>
<td>Other comments and/or suggestions:</td>
<td>See below</td>
</tr>
</tbody>
</table>

**QUESTION 4A**: What could have been done differently to make it more effective?

- Start from day 1 with a case.
- Maybe more days.
- The only thing I can think of is having a more consistent example from the outset to work on.
- Separating the statistic subjects from SPSS. One day M&E concepts and basics and 2 days statistics methods and 2 days SPSS application.
- To concentrate on easy and commonly used techniques.
- Handouts of presentations, concentrate on one subject.
- Handouts from the subject at the end of the day. That way we can always remind ourselves if we forgot something.

A rating of 1 to 3 was used for this question only. 1=less than half, 2=about half, 3=more than half.
QUESTION 8: Other Comments and/or Suggestions:

- Considering the complexity of the subject, the quality of the training was very high! Trainer has really put an effort in both preparation as well as the presentation of the material. I can only say: well done!
- A simple manual on SPSS would be useful.
- Tell the participants in advance the type of data they should get from their projects (be specific).
- Relate more on the project levels of each participant.
- Less theoretical and more practical.
- If we had more time and resources we would all do quantitative research.
  Contacts among CARE offices is very useful. It makes us feel a part of a bigger group from which we can learn a lot and be more efficient.
- For two persons to work on the same computer application training is not practical. The training should rent an additional computer for CO participants of which we couldn't bring more than one laptop.
- It would be really helpful to have 2 days practical exercises on crosstabs (chi-squares, correlations) But what we achieved is impressive for 5 days of workshop. Trainer skills are excellent, thanks!
- Overloaded program.

The results convey a very high level of satisfaction with the workshop. Feedback was also solicited at the end of each workshop day and taken into consideration for the following day.

CONCLUSIONS

Overall, the workshop was well received and the results satisfactory. Even though participants felt that the skills were very relevant to their work, it seems participant selection and preparation could still be improved. Not all participants came, as requested, with examples to work on – a questionnaire, a planned evaluation or investigation, a project logical framework – something which would offer a frame of reference for asking questions about quantitative research and its use.

Based upon the pre and post test scores, the evaluations and the general impressions of the facilitator, it is clear that participants greatly benefited from the workshop. This workshop provided an introduction to the concepts and procedures behind quantitative analysis. All participants gained some tangible skills from the workshop that can be applied to their M&E units in their country office for current or future projects.
Monday February 16th, Day 1
I. Step 1: Research Design
   A. Quantitative and qualitative approaches
   B. Formulating questions
   C. Develop an analysis plan/log frame
   D. Identifying outcome indicators

Tuesday February 17th, Day 2
II. Step 2: Data Collection
   A. Preparing quantitative research tools
   B. Sampling
   C. Fieldwork considerations

Wednesday February 18th, Day 3
III. Step 3: Data Management
    A. Database design
    B. Coding
    C. Data entry
    D. Dataset cleaning

IV. Step 4: Descriptive Analysis
    A. Frequency analysis of single variables
    B. Displaying frequency data
    C. Measures of central tendency
    D. Measures of Variability
    E. Displaying data for two variables

Thursday February 19th, Day 4
V. Step 5: Interpretive Analysis
   A. Introduction to Statistical Theory
   B. The five parts of a statistical test
   C. Parametric Statistics
   D. Non-Parametric Statistics

Friday February 20th, Day 5
VI. Step 6: Interpretation and Report Writing
    A. Approaches for interpreting results
    B. Writing and presentation tips
## ANNEX 2
### NOMINATION FORM

Please fill answers in the right hand column next to each question.

### Name of First Nominee:

<table>
<thead>
<tr>
<th>Position of First Nominee</th>
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</table>

Please describe the relevance of this workshop to the nominee’s responsibilities:

<table>
<thead>
<tr>
<th>Briefly describe the experience level of the nominee in M&amp;E methods:</th>
</tr>
</thead>
</table>

Please describe whether this nominee would have immediate use for these skills:

<table>
<thead>
<tr>
<th>Please explain whether this individual would be in a position to guide and mentor others in your CO on the acquired skills:</th>
</tr>
</thead>
</table>

### Name of Second Nominee:

<table>
<thead>
<tr>
<th>Position of Second Nominee</th>
</tr>
</thead>
</table>

Please describe the relevance of this workshop to the nominee’s responsibilities:

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<tr>
<th>Briefly describe the experience level of the nominee in M&amp;E methods:</th>
</tr>
</thead>
</table>

Please describe whether this nominee would have immediate use for these skills:

<table>
<thead>
<tr>
<th>Please explain whether this individual would be in a position to guide and mentor others in your CO on the acquired skills:</th>
</tr>
</thead>
</table>

Please submit to MERMU by 23 January, 2004 to picardm@care.org
ANNEX 4
EVALUATION SHEET

1. How relevant was this workshop to your work?  
   (1 = not at all; 2 = a little; 3 = somewhat; 4 = fairly; 5 = very)  
   _____1 _____2 _____3 _____4 _____5

2. How well do you feel you understood the subject matter covered in this workshop?  
   (1 = less than half; 2 = about half; 3 = more than half)  
   _____1 _____2 _____3

3. How would you rate the quality of the sessions?  
   (1 = poor; 2 = fair; 3 = good; 4 = very good; 5 = excellent)  
   Day 1 – research design   _____1 _____2 _____3 _____4 _____5  
   Day 2 – data collection and best practices   _____1 _____2 _____3 _____4 _____5  
   Day 2 – sampling   _____1 _____2 _____3 _____4 _____5  
   Day 3 – Kosovo project introduction   _____1 _____2 _____3 _____4 _____5  
   Day 3 – descriptive statistics   _____1 _____2 _____3 _____4 _____5  
   Day 4 – interpretive statistics   _____1 _____2 _____3 _____4 _____5  
   Day 5 – research project and reporting   _____1 _____2 _____3 _____4 _____5

4. How effective were the training methods (mix of presentation, small group work, different ways of reporting out) in helping you to understand the subject matter?  
   (1 = not at all; 2 = a little; 3 = somewhat; 4 = fairly; 5 = very)  
   _____1 _____2 _____3 _____4 _____5

What could have been done differently to make it more effective?  
__________________________________________________________________________________  
__________________________________________________________________________________  
__________________________________________________________________________________

5. How helpful did you find the materials used?  
   (1 = not at all; 2 = a little; 3 = somewhat; 4 = fairly; 5 = very)  
   _____1 _____2 _____3 _____4 _____5

6. How would you rate the trainer in terms of how clear he was in presenting the material?  
   (1 = poor; 2 = fair; 3 = good; 4 = very good; 5 = excellent)  
   _____1 _____2 _____3 _____4 _____5

7. How well do you feel you will be able to apply the concepts and tools learned in this workshop?  
   (1 = not at all; 2 = a little; 3 = somewhat; 4 = fairly; 5 = very)  
   _____1 _____2 _____3 _____4 _____5

8. Other comments and/or suggestions:  
__________________________________________________________________________________  
__________________________________________________________________________________  
__________________________________________________________________________________  
__________________________________________________________________________________  
__________________________________________________________________________________  
__________________________________________________________________________________  
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ANNEX 5
PRE AND POST TEST

Less than 50% of participants were correct during the PRE test

Less than 50% of participants were correct during both PRE and POST

Quantitative Methods Training Pre-Test

The purpose of this pre-test is to assess the knowledge of participants about quantitative methods before the training in order to measure a baseline from which to compare what is learned after the training is complete. You will not be graded on this and are not expected to know any of the correct responses. The answers will not be revealed.

1. **Quantitative research** deals primary with quantities and drawing statistical comparisons.
   True or False

2. Which of these is the most logical way to proceed with quantitative research?
   a) data management -> data acquisition -> data analysis -> interpretation
   b) data acquisition -> data analysis -> data management -> interpretation
   c) data acquisition -> data management -> data analysis -> interpretation

3. A **sampling frame** is a list of units in the population from which the sample will be drawn.
   True or False

4. Match the concept with the most appropriate definition:

   a) **external validity**
   c) **internal validity**

   _____ The degree to which we can trust the conclusions of an analysis regarding casual relationship between variables.

   _____ The degree to which we can infer that the relationship can be generalized to a larger population (not included in the sample).

5. Using the list of responses below, choose which is best for each of the following three questions. Not all of the responses will be used.

   a) **Dendritic sampling**
   b) **Simple random sample**
   c) **Stratified random sample**
   d) **Cluster sample**
   e) **Purposive sampling**

   _____ The most basic random sampling strategy.

   _____ A random sampling strategy useful in capturing geographically dispersed populations.

   _____ A random sampling strategy designed specifically for capturing sub populations?

6. Which of the following is **NOT** a part of cleaning a dataset?
   a) identifying and dealing with outlier responses
   b) correcting raw data values
   c) identifying and dealing with sampling errors
   d) identifying and dealing with logical inconsistencies
7. Match the type of data with its most appropriate definition:

a) Interval data
b) Nominal data
c) Ratio data
d) Ordinal data

_____ Values can only be placed into a variable, but it cannot be organized in any way. (e.g., name, occupation, geographic zone, gender of household head).

_____ Values can be ordered in ascending or descending order. Values do not provide any indication of magnitude. (e.g., poor-average-good).

_____ Values can be ordered, distance between values can be measured and values have a true zero. This is the only kind of data that can be divided, multiplied, etc.

_____ Values can be ordered and have measurable distance between each other. Values do not have a true zero, therefore they are not real numbers. (e.g., date, temperature-C or F).

8. **Statistical analysis** provides basic descriptions of the data using mathematical tools such as mean, median and mode, but does **NOT** draw comparisons of any kind.
   True or False

9. Match the following concepts with the most appropriate definition:

   a) standard deviation
   b) mean
c) median
d) range
e) mode

_____ Sum of responses divided by the number of responses (synonym is the 'average').

_____ The most common response (highest frequency).

_____ Given a set of responses arranged numerically, this is the number that falls in the middle.

_____ The difference between the largest and smallest measurements.

_____ The square root of the variance (deviation from a mean for values in a variable).

10. Draw a **Normal Curve**.                                    11. Draw a **Non-Parametric Curve**

12. Which of these definition best represents a **Null Hypothesis**.
   a) There is no statistically significant difference between the two groups
   b) Group A is statistically greater than group B
   c) Group B is statistically greater than group A

13. **Type II Error** is when we reject the null hypothesis when it is in fact true.
   True or False
14. A **One-Tailed Test** measures significant difference in one direction only. It is more rigorous than a two-tailed test.

   True or False

15. Match the following statistical tests with the most appropriate definition:

   a) Paired T-Test
   b) Wilcox Rank Sum Test (Mann-Whitney U Test)
   c) ANOVA
   d) One-Sample T-Test
   e) Linear Regression
   f) Chi-Square (Crosstabs)
   g) Independent T-test

   _____ Explores the statistical nature of a single, normally distributed variable using one sample. This test determines if a known test value is significantly different from the known population mean.

   _____ Explores the statistical nature of a single parametric variable using two samples, each drawn from different populations. This test shows if two population means are equal.

   _____ Explores the statistical nature of a single parametric variable using two samples drawn from the same case. Each measurement in one sample is matched with another. This is usually done over time showing temporal change in a single unit (e.g., household).

   _____ Explores the relationship between two variables with ratio data for the purposes of testing a hypothesis that predicts the value of one variable from the other.

   _____ Examines a group of independent samples and tells us whether there is a greater difference in the between-groups variance as compared to the within-groups variance.

   _____ Explores the relationship between two variables with categorical or nominal data for the purposes of hypothesis testing.

   _____ Explores the statistical nature of a single non-parametric variable using two independent random samples drawn from different populations.