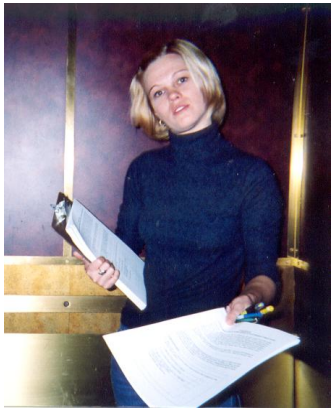

Curriculum for Rapid, Participatory Research & Evaluation
Designed for use in community studies of STDs and HIV/AIDS

Section 8
Data Verification

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Section 8: Data Verification

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Section 8: Data Verification

Intended learning outcomes

This section is designed to acquaint the implementation team with strategies to verify data. The intended learning outcomes follow.

1. To introduce the concepts of study reliability and validity.
2. To demonstrate ways that the implementation team has been working on verifying data through all the processes they have already undertaken.
3. To provide streamlined and efficient directions for increasing study reliability and validity.

Chapter 1 introduces the reliability and validity issues.

Section 8, Chapter 1: Introduction to data verification

8.1.1 Introduction to data verification

Throughout this curriculum we have urged the implementation team to undergo steps in the study process that would help them to follow processes systematically, work with mixed methods, make decisions in teams, invite the participation of study participants, record their efforts on worksheets, and revisit/review issues at specific intervals. While many of these steps are designed to help teach, they also increase the reliability and validity of the study.

Terms. The term "reliability" in research refers to the consistency of the research processes and the documentation of these processes throughout the study. This combination allows future researchers to replicate the study to discover if they achieve the same results. If the original study was "reliable," and historical and other factors do not intervene that might change outcomes, the results should be very much the same.

The term "validity" refers to the accuracy of research tools, data, and findings. Are the study results trustworthy? Validity addresses issues such as whether various data sources support the same general findings and whether or not research tools such as interview guides, tests, and questionnaires actually measure what they are supposed to measure. More will be discussed on each of these topics in the chapters that follow.

Read the example below for ways in which reliability and validity played a role in an evaluation.

Jill Florence Lackey & Associates was under contract to conduct an evaluation of a large urban program that was designed to divert troubled youth from the criminal justice system by referring them into community service and a range of youth development activities. The program's funding source wanted to know whether this effort resulted in a lower level of recidivism for these youth. We implemented a quasi-experimental evaluation model with a random sample of 270 youth in the intervention group and 270 in the comparison group. When given self-report surveys, the intervention group reported .4 police citations over one year in the program, compared to just over double that by the comparison group. To verify our findings we added another data source. We accessed court documents of a second random sample of comparable size for each group. The court records showed .42 police citations for the intervention group and double that for the comparison group during the same approximate period. The triangulation with the

second data source added validity to the study findings. As with all research projects, our staff carefully documented our procedures during the study.

Four years later we were contacted again. This time the program was only interested in having us repeat the assessment of court records with the program's current clients. Program activities had remained remarkably stable during the interim (except of course the clients had changed, as well as some of the program staff). Following the exact same procedures we had documented in the earlier study, our findings were nearly identical. Four years earlier we found 66% of the program clients with no repeat offenses during a year in the program, and for those who did re-offend, the mean number of days between offenses was 148. In the second study we found 67% of the program clients with no repeat offenses during a year in the program, and for those who did re-offend, the mean number of days between offenses was 141 days. In both instances results for the comparison group were significantly lower.

The above case is exceptional because the program had changed very little over four years. In most cases social programs are not that stable. Some specialists in ethnography caution researchers against having high expectations that follow-up studies using the same procedures will result in very similar findings. Cultural settings are multiplex. Clearly people are diverse and change, historical events intervene, and cultural trends vary. For the same reasons, these same specialists also caution researchers to avoid expecting a high level of convergence in findings from different data sources (e.g., Wolcott, 2005, pp. 158-162).

This being said, the members of the implementation team should still do what they can to ensure the reliability and validity of the study. See the chapters that follow.

Section 8, Chapter 1: Introduction to data verification

8.1.2 Resources

Chapter references

Wolcott, H.F. (2005). *The art of fieldwork* (2nd ed.). Walnut Creek, CA: AltaMira.

Section 8, Chapter 2: Reliability

8.2.1 Intended learning outcomes

The intended learning outcomes of this chapter on reliability follow.

Upon completion of Chapter 2, the implementation team will be able to:

1. Produce documents that will improve the reliability of their study; and
2. Test measurements in quantitative methods to increase the reliability of their study.

Section 8, Chapter 2: Reliability

8.2.2 Introduction

As stated in the introductory chapter, establishing reliability in a study implies that the study is conducted in such a way that a later researcher would be able to arrive at the same conclusions if the study is repeated (assuming a relatively stable environment in the domain being studied). Yin (2003, pp. 38-39) describes the process involved in establishing reliability.

> *The general way of approaching the reliability problem is to make as many steps as operational as possible and to conduct research as if someone were always looking over your shoulder. In accounting and bookkeeping, one is always aware that any calculations must be capable of being audited. In this sense, any auditor is also performing a reliability check and must be able to produce the same results if the same procedures are followed.*

If the implementation team has followed all the steps in this training curriculum and filled out all the worksheets under the categories of "quality control" and performing tasks "systematically," this documentation is already in place. The team has worksheets on the research questions, pre-research, the target communities, the sampling plan[s], the research design, all forms of data collection, and all forms of data analysis. The team has documented all ways that the research was done systematically and each process was re-visited during specific intervals. The team has created a paper trail for replication of the study.

The team should now create a comprehensive file of these worksheets. The team may design any type of file that seems appropriate. A simple strategy would be to organize the sheets chronologically and keep them in a ring binder with dividers that separate the worksheets by relevant subject matter (e.g., pre-research, sampling, ethics, data collection, design, data analysis). An introduction to the file could then be added at the beginning with a table of contents. (Always keep photocopies of originals.)

In quantitative research measurement, other strategies can be added to increase reliability. These include:

- *Test-retest comparisons*. Here the implementation team can use the same measure (such as survey questions) on the same people several weeks apart, to see if the same results emerge.
- *Interviewer comparisons*. Here the team can compare results from separate raters who are observing or examining the same data independently.
- *Internal consistency*. The implementation team can compare multiple items that are expected to measure the same construct (or general category of information) in a scale[1].

[1]This process would require the assistance of a data analyst, as the statistical procedures are beyond the scope of this curriculum.

Section 8, Chapter 2: Reliability

8.2.3 Learning activities

Time to review

The implementation team should now ask each other the following questions.

1. What processes increase reliability of studies in both quantitative and qualitative studies?
2. What additional processes increase reliability of studies in quantitative methods?

Documenting processes systematically

The implementation team should respond to the following questions to ensure documentation of all processes (also see more detailed worksheets in the appendix).

MANAGING DOCUMENTATION

1. Has the team filled out all worksheets for curriculum sections that the team has completed that fall under the headings of performing tasks "systematically" and "quality control"?
2. What kind of a systematic filing system does the team plan for maintaining these worksheets?

Quality control: Checking progress

Once the study is underway, the implementation team should perform quality checks to ensure reliability of the study. The researchers can accomplish this by responding to the questions below. (The more detailed worksheets are printed at the end of this section.)

QUALITY CONTROL ASSESSMENT: RELIABILITY ISSUES

1. Are all worksheets that fall under the headings of performing tasks "systematically" and "quality control" up to date?
2. Are all worksheets properly filed?

Section 8, Chapter 2: Reliability

8.2.4 Resources

Chapter references

Yin, R.K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.

Additional resources on reliability

Carmines, E.G., & Zeller, R.A. (1979). *Reliability and validity assessment*. Newbury Park, CA: Sage.

LeCompte, M.D., & Schensul, J.J. (1999). *Designing & conducting ethnographic research*. Walnut Creek, CA: AltaMira.

Section 8, Chapter 2: Appendix

WORKSHEET CHAPTER 2A: MANAGING DOCUMENTATION SYSTEMATICALLY

1. Has the team filled out all worksheets for curriculum components that the team has completed that fall under the headings of performing tasks "systematically" and "checking progress"?

   Yes ____ No ____

   If "no," now is the time to do this.

2. What kind of a systematic filing system does the team plan for maintaining these worksheets?

WORKSHEET CHAPTER 2B: QUALITY CONTROL ASSESSMENT--STUDY RELIABILITY

1. Are all worksheets that fall under the headings of performing tasks "systematically" and "quality control" up to date?

Yes _____ No _____

If "no," now is the time to do this.

2. Are all worksheets properly filed?

Yes _____ No _____

If "no," now is the time to do this.

Section 8, Chapter 3: Validity

8.3.1 Intended learning outcomes

The intended learning outcomes of this chapter on validity follow.

Upon completion of Chapter 1, the implementation team will be able to:

1. Ensure the internal validity of the study;
2. Ensure the external validity of the study;
3. Know what information to add to any report on findings to increase validity.

Section 8, Chapter 3: Validity

8.3.2 Introduction

As stated in the introduction, validity refers to the accuracy of research tools, data, and findings. Are the study procedures and results trustworthy? Validity addresses issues such as whether various data sources truly support the reported findings/interpretations and whether or not research tools such as interview guides, tests, and questionnaires actually measure what they are supposed to measure. The subject of validity is very complex and the implementation team will only be introduced to some of the more elementary steps here in establishing study validity.

Issues involving internal and external validity are relevant for both qualitative and quantitative research. Schensul et al (1999, pp. 104-105) discriminate between internal and external validity in conducting ethnography in the following way.

> Internal validity *refers to the extent to which scientific observations generate data and measurements that authentically represent some reality—for example, the way in which a given group of people views its world.* External validity *refers to the degree to which such representations can be compared legitimately across groups, as well as the extent to which one group or a sample of groups is representative of an entire population.*

Thus, as the labels imply, internal validity is dealing with the trustworthiness of the study itself and external validity is dealing with how the study can be generalized to a population or other domain. Validity may also refer to a specific measure within a study. In this case, the issue is whether the specific measure (e.g., knowledge about STDs) really measures what it claims.

As will become even more obvious later in this chapter, many of the issues of internal/external validity have already been addressed throughout the curriculum. For example, if the team involved key stakeholders in the initial planning phase, or if the team has involved community members throughout the research process as in community-based participatory research (CBPR), then issues involving internal validity have been addressed. If the team has allowed an

outside researcher to review the research design and methods, they have helped to ensure the external validity of the study.

Let us take a hypothetical study where internal validity might be an issue. Imagine that the implementation team is conducting a pure experiment on a small program with short duration. In the section, Data Collection—Quantitative Strategies, we discussed a potential study where a population was being assessed on knowledge of STD transmission and later discussed the responses with health educators. The discussions were designed to increase participants' knowledge level. In this case the health educators or the implementation team could randomly assign participants into two groups before the initial assessment is given. Both groups then take the knowledge assessment (which would act as a pretest survey). Those in the intervention group then discuss the responses with health educators, and in the process learn the correct answers. Those in the control group could either receive no intervention or could be given an alternative intervention that would not be expected to immediately increase their knowledge of STD transmission.

Questions on the internal validity of this study would include, at minimum, the following:

1. Did the implementation team pre-research the topic so that the knowledge-based questionnaire was accurate? Did they have experts in the field check this?
2. Was the questionnaire piloted with a similar population to the one being studied?
3. Was there true random assignment into the intervention and control group, and were the groups kept separate?
4. Did multiple observers agree that the health educators were actually giving the correct answers to the participants during the discussions? Were these findings verified with the health educators and a group of research participants?
5. Were appropriate data analysis techniques used?
6. Were findings given to the program staff and the research participants for verification of any study interpretations? Did they agree with the interpretations?

Let us follow this with a hypothetical example that might involve external validity.

In the chapter on "Sampling" in the section, Research Participants, we proposed a hypothetical study. In this case the implementation team was assessing the need for STD services in an area and conducting surveys with an STD-affected community. Through self-administered questionnaires, they ask a random sample of this community where they went to receive particular services. The team might learn that the STD-affected community used one institution or program very frequently, another fairly often, and another very infrequently. From these responses alone, the team could not know if

the program used by nearly everyone offered better services, or offered less expensive or free services, or if it simply was more well known, or if it offered a wider range of services enabling consumers to access all their needs in one stop. This would then be an opportunity for the implementation team to conduct case studies of the three programs.

Questions on the external validity of this study would include, at minimum, the following:

1. In the original survey, was the sampling plan correct? Did enough participants take the survey to be representative of the whole? Were different categories of this population sufficiently represented?
2. What kinds of quantitative analyses were used to guide the implementation team in deciding which program was used "very frequently," "fairly often," and "very infrequently"? Were these appropriate? Did the full team and a group of research participants support these findings?
3. When writing or presenting findings, did the team limit generalizations to the population/domain that was sampled?

If the implementation team was conducting either of these studies, members have already (or will have) addressed almost every question on validity. This of course assumes that the team read all curriculum sections relevant to their study and completed all the practice exercises.

In addition to the above examples, Creswell (2003, pp. 196-197) offers a list of eight ways to ensure validity--most particularly in qualitative research. The list is paraphrased below.

1. *Triangulate*. The topic of triangulation was introduced in the section, Data Collection—Mixed Methods. Beebe (2001, p. 19) describes the ways that triangulation can add validity to rapid assessment processes.

Triangulation has been used as a metaphor by social scientists for the use of data from different sources, the use of several different researchers, the use of multiple methods to study a single problem… Intensive teamwork can increase the power of triangulation exponentially.

If the implementation team is using mixed methods (which we strongly recommend) and has completed all the curriculum exercises and worksheets relevant to the team's study, triangulation has been accomplished.

2. *Member checking*. Creswell defines "member checking" as involving the target communities/research participants in data analysis and interpretation of findings. The team should have (and will have) accomplished this.

3. *Use rich description*. Rich, detailed description should be used in all field notes so that anyone accessing these notes will be convinced of their validity. The team should have accomplished this from instructions and exercises in the chapter on "Observation" in the section, Data Collection—Qualitative Strategies. In addition, the team will want to make sure some of these examples of rich description appear in presentations of findings.

4. *Clarify research bias*. Researchers need to list any biases they have that might affect study procedures or interpretation of results. Stated researcher bias would have eliminated a potential member of the implementation team in the early selection exercise. However, biases could emerge in the course of the study. To increase study validity, these should be identified and stated in any reports on findings.

5. *Present negative information.* Creswell recommends increasing the validity of the findings by offering examples of data that did not support the general conclusions. The implementation team can add this to its list of validity checks.

6. *Spend prolonged time in the field*. Unfortunately this check on validity is probably not possible in the Rapid Ethnographic Assessment.

7. *Use peer debriefing*. Creswell suggests asking a respected researcher to review the work and determine whether or not the findings (and their interpretations) appear valid. The implementation team could clearly add this as a validity check. If the team knows a respected researcher, they should seek help from this individual.

8. *Use an external auditor*. Creswell also suggests finding a researcher the team does not know and is unfamiliar with the project and have that individual audit the study procedures. This would be another good way to increase study validity.

Section 8, Chapter 3: Validity

8.3.3 Learning activities

Time to review

The implementation team should now try out the following exercises.

1. Describe ways to ensure the internal validity of the study;
2. Describe ways to ensure the external validity of the study;
3. Describe information the team will add to any report on findings to increase validity.

Checking study validity systematically

The implementation team should respond to the following questions to ensure study validity (also see more detailed worksheets in the appendix).

ENSURING VALIDITY SYSTEMATICALLY

1. Has the team filled out all exercises relevant to the methods used in this study offered in the sections on data collection and data analysis?
2. Is there published evidence on the validity of measures used in similar samples?
3. Has the team selected a researcher known to them to check study processes and conclusions?
4. Has the team selected a researcher unknown to them (and unfamiliar with the study) to check study processes and conclusions?
5. What information will be added to any report on findings to increase study validity?

Quality control: Checking progress

At agreed-on intervals, the implementation team should perform quality checks to ensure validity of the study. The researchers can accomplish this by responding to the questions below. (The more detailed worksheets are printed at the end of this section.)

QUALITY CONTROL ASSESSMENT: STUDY VALIDITY CHECK

1. Are all exercise worksheets related to data collection and data analysis being added to the file created to ensure study reliability?
2. What, if any, recommendations have been made by the known researcher or the unknown researcher in improving the study?
3. (If applicable) What steps are being taken to meet these recommendations?

Section 8, Chapter 3: Validity

8.3.4 Resources

Chapter references

Beebe, J. (2001). *Rapid assessment process: An introduction*. Walnut Creek, CA: AltaMira.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (2nd ed.). Thousand Oaks, CA: Sage.

Schensul, J.J., LeCompte, J.D., Nastasi, B.K. & Borgatti, S.P. (1999). *Enhanced ethnographical methods*. Walnut Creek, CA: AltaMira.

Additional resources on validity

Carmines, E.G., & Zeller, R.A. (1979). *Reliability and validity assessment*. Newbury Park, CA: Sage.

LeCompte, M.D., & Schensul, J.J. (1999). *Designing & conducting ethnographic research*. Walnut Creek, CA: AltaMira.

Section 8, Chapter 3: Appendix

WORKSHEET CHAPTER 3A: ENSURING VALIDITY SYSTEMATICALLY

1. Has the team filled out all exercises relevant to the methods used in this study that were offered in the component on data collection and data analysis?

   Yes _____ No _____

   If "no," now is the time to do this.

2. Is there published evidence on the validity of measures used in similar samples?

   Yes _____ No _____

3. Has the team selected a researcher known to them to check study processes and conclusions?

Yes _____ No _____

What is the name and qualifications of this researcher?

_____

4. Has the team selected a researcher unknown to them (and unfamiliar with the study) to check study processes and conclusions?

Yes _____ No _____

What is the name and qualifications of this researcher?

_____

5. What information will be added to any report on findings to increase study validity?

   a. Topic #1 _____

      Contents
      _____

      _____

      _____

   b. Topic #2 _____

      Contents
      _____

      _____

      _____

   c. Topic #3 _____

      Contents
      _____

      _____

      _____

WORKSHEET CHAPTER 3B: QUALITY CONTROL ASSESSMENT--STUDY VALIDITY CHECKS

1. Are all exercise worksheets related to data collection and data analysis being added to the file created to ensure study reliability?

   Yes _____ No _____

   If "no," now is the time to do this.

2. What, if any, recommendations have been made by the known researcher or the unknown researcher in improving the study?

3. (If applicable) What steps are being taken to meet these recommendations?