Learning Objectives

The goal of this module is to: Explore the components and tasks related to the gathering and managing of data for your research project.

Upon successful completion of this module, you will be able to:

• Understand the importance of careful data management
• Explore various data collection methods, including questionnaires/surveys and interviews
• Compare various proposal formats and their requirements
• Generate meeting agendas, minutes, and activity logs
Data Collection Methods

Quantitative Data Collection Methods

- Scientific Experiments/Laboratory Tests
- Systematic Observations – observation that counts or collects measurable data
- Questionnaires/Surveys
- Structured Interviews/Individual or Focus Groups – closed ended questions
Quantitative Data Collection Methods

Scientific Experiments/Laboratory Tests

The Scientific Method involves making observations, asking questions, preparing hypotheses, and preparing and conducting experiments to accept or reject these hypotheses.

Experiments include:

- Setting up equipment
- Setting up control and experimental groups
- Conducting experiment
- Documenting observations and findings
- Analyzing data
- Drawing conclusions
- Reporting
Quantitative Data Collection Methods

Measurement Instruments

Closed Question Questionnaire – instrument used to collect data that can be counted and specifically measured

Questionnaire uses a Scale – set of written questions or statements that are intended to measure a specific variable

Examples of Scales:

1. Dichotomous – 2 answers only – e.g. True or False; Yes or No
2. Selection: e.g. I work through lunch
   a) always  b) sometimes  c) occasionally  d) never
3. Multiple Choice – 2 or more answers are possible
Quantitative Data Collection Methods

Scales (cont’d)

3. Likert Scale

   Strongly Agree   Agree   Neutral   Disagree   Strongly Disagree

4. Semantic Differential – scale set up between bipolar words

   e.g. Expensive………………………Inexpensive

   Fresh……………………………Old

5. Forced Ranking – respondent ranks each option that applies

   e.g. I prefer the College`s cafeteria to open on weekends at:

<table>
<thead>
<tr>
<th>Opening Time</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 a.m.</td>
<td>___</td>
</tr>
<tr>
<td>7:00 a.m.</td>
<td>___</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>___</td>
</tr>
</tbody>
</table>

6. Adjective Checklist  e.g. The taste is:

   Salty ___   Pleasant ___
   Spicy ___   Unpleasant ___
Structured Interviews

- Pre-established questions
- Interview schedule
- Closed-ended questions
- Methods of recording determined in advance – scribing (writing answers); recording – audio or videotape; combination with questionnaire
## Quantitative Data Collection Methods - Comparison

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Face-to-Face Interview</th>
<th>Telephone Interview</th>
<th>Mail Questionnaire</th>
<th>Internet Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Admin Factors</strong></td>
<td>High (4-12 \text{ wks}) Must be close proximity</td>
<td>Low-medium (2-4 \text{ wks}) May be wide</td>
<td>Low (10 \text{ wks}) May be wide</td>
<td>Low (1-3 \text{ wks}) May be wide</td>
</tr>
<tr>
<td>Cost</td>
<td>High (4-12 \text{ wks}) Must be close proximity</td>
<td>Low-medium (2-4 \text{ wks}) May be wide</td>
<td>Low (10 \text{ wks}) May be wide</td>
<td>Low (1-3 \text{ wks}) May be wide</td>
</tr>
<tr>
<td>Data-collection period</td>
<td>High (4-12 \text{ wks}) Must be close proximity</td>
<td>Low-medium (2-4 \text{ wks}) May be wide</td>
<td>Low (10 \text{ wks}) May be wide</td>
<td>Low (1-3 \text{ wks}) May be wide</td>
</tr>
<tr>
<td>Geographic distribution</td>
<td>High (4-12 \text{ wks}) Must be close proximity</td>
<td>Low-medium (2-4 \text{ wks}) May be wide</td>
<td>Low (10 \text{ wks}) May be wide</td>
<td>Low (1-3 \text{ wks}) May be wide</td>
</tr>
<tr>
<td><strong>Question Issues</strong></td>
<td>Long (30-60 \text{ min}) Complex Fair</td>
<td>Med-long (15-35 \text{ min}) Simple Fair-good</td>
<td>Short-medium (4-12 \text{ pages}) Simple-mod. Good</td>
<td>Short (\text{less than 15 min}) Simple-mod. Poor-fair</td>
</tr>
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<td>Length</td>
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</tr>
<tr>
<td>Complexity</td>
<td>Long (30-60 \text{ min}) Complex Fair</td>
<td>Med-long (15-35 \text{ min}) Simple Fair-good</td>
<td>Short-medium (4-12 \text{ pages}) Simple-mod. Good</td>
<td>Short (\text{less than 15 min}) Simple-mod. Poor-fair</td>
</tr>
<tr>
<td>Ability to handle sensitive issues</td>
<td>Long (30-60 \text{ min}) Complex Fair</td>
<td>Med-long (15-35 \text{ min}) Simple Fair-good</td>
<td>Short-medium (4-12 \text{ pages}) Simple-mod. Good</td>
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</tr>
<tr>
<td><strong>Data Quality Issues</strong></td>
<td>Low Low Low Good</td>
<td>Low Fair-good Low good</td>
<td>Low Poor-good Med-high Fair-good</td>
<td>Low-high Poor-good Med-high Fair-good</td>
</tr>
<tr>
<td>Sampling bias</td>
<td>Low Low Low Good</td>
<td>Low Fair-good Low good</td>
<td>Low Poor-good Med-high Fair-good</td>
<td>Low-high Poor-good Med-high Fair-good</td>
</tr>
<tr>
<td>Response rate</td>
<td>Low Low Low Good</td>
<td>Low Fair-good Low good</td>
<td>Low Poor-good Med-high Fair-good</td>
<td>Low-high Poor-good Med-high Fair-good</td>
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<td>Low Low Low Good</td>
<td>Low Fair-good Low good</td>
<td>Low Poor-good Med-high Fair-good</td>
<td>Low-high Poor-good Med-high Fair-good</td>
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<tr>
<td>Quality of recorded response</td>
<td>Low Low Low Good</td>
<td>Low Fair-good Low good</td>
<td>Low Poor-good Med-high Fair-good</td>
<td>Low-high Poor-good Med-high Fair-good</td>
</tr>
</tbody>
</table>
Data Collection Methods

Qualitative Data Collection Methods

- Field Notes
- Participant Observation (the researcher is embedded within the group)
- Unstructured Interviews/Individual or Focus Group
- Open Ended Questions
Qualitative Data Collection Methods

Field Notes: Enter all field notes in your log book (each team member keeps his/her own log book)

Log Book Guidelines:

- Use a bound notebook, not loose sheets of paper
- Number the pages and initial at the bottom of each page
- Leave the first 2 pages free for title page/contents
- Start a new page for each new project (if appropriate), but otherwise, do not leave blank pages
- Date every page and record the time of day for each entry
- Always write directly into the log. Never work with loose paper with the intent to copy into the log later.
- Do not use pencil. If you make a mistake, X the wrong entry, write the correct one, and initial
- Provide diagrams, sketches, etc. if they are part of your work for that day
- When you finish collecting and entering data, note preliminary findings where appropriate

Note: some elements of field notes log quantitative data
Qualitative Data Collection Methods

Participant Observation

Information is gathered by watching people, events or geographic areas. The researcher is present and often involved in the observation activity. There are 3 levels of participant involvement:

- Passive — researcher is present at the scene but does not participate or interact
- Marginal — researcher has limited involvement
- Active — researcher is active participant
Qualitative Data Collection Methods

Unstructured Interviews or Focus Groups

- Questions are open-ended allowing for wide variety of free answers
- Examples: What are your work goals for the coming year? What positive things can you say about the College? What is the highest level of education you have achieved?
- Focus groups have the attribute of efficiency, sometimes to the detriment of accuracy. Individuals in the group can dominate and influence others.
### Qualitative Data Collection Methods - Comparison

<table>
<thead>
<tr>
<th>Data Collection Tool</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstructured Interview</td>
<td>• Good if there are few people to interview</td>
<td>• Expensive&lt;br&gt; • Needs skilled interviewer&lt;br&gt; • Difficult to compare responses</td>
</tr>
<tr>
<td></td>
<td>• Good if there is variability among participants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can “inform” quantitative research</td>
<td></td>
</tr>
<tr>
<td>Focus Group</td>
<td>• Collects data quickly and less costly&lt;br&gt; • Obtains large and rich amounts of data in respondents’ own words&lt;br&gt; • Can “inform” quantitative research</td>
<td>• Limited generalization to larger population&lt;br&gt; • Biased if dominated by one member&lt;br&gt; • Difficult to summarize and interpret results&lt;br&gt; • Needs skilled interviewer</td>
</tr>
<tr>
<td>Participant Observation</td>
<td>• Insightful, provides information on what is actually happening&lt;br&gt; • Can “inform” quantitative research</td>
<td>• Difficult to gain admittance to group&lt;br&gt; • Observer needs good observing skills&lt;br&gt; • Time consuming&lt;br&gt; • Ethical considerations</td>
</tr>
</tbody>
</table>
Data Collection Guidelines

Interviews

- Schedule the interview with target participant(s)
- Begin with introductory pre-scripted remarks
- Use a questionnaire or question guide
- Use simple language
- Avoid jargon
- Pose questions that are not too “leading” or too personal
- Ask questions that permit only one interpretation (e.g. avoid “a lot”)
- Ask questions that are appropriate for knowledge of respondent
- Avoid agreeing or disagreeing
- Avoid suggesting answers
- Don’t be afraid of silence
Data Collection Guidelines

Questionnaires

- Prepare an attractive printed questionnaire
- State your purpose and ensure all questions relate to it
- Questions should normally be in descending order of importance
- Use branching questions where appropriate (e.g. “if Yes, go to Q4; if No, go to Q8”)
- If mailed, include postage-paid envelope
- For web questionnaires, be very careful of what you put in the subject line – use names where possible
- Consider using web survey tools for complex surveys
- Questionnaire can be part of an interview or focus group
Data Collection Guidelines

Observation

- Decide on and write down what you want to observe
- Prepare an observation recording sheet
- Arrange observation schedule and volunteers if needed
- Conduct the observation using field notes (running description of the setting, events, people, things heard, interactions, etc.)
- Transfer field notes onto recording sheet within 24 hours for later analysis
- Determine additional information for next observation session
As an applied researcher, you are responsible to keep an activity log about your work progress. It is important that you are able to track and communicate your activities related to the project you are working on. An activity log is different from your log book. It is a formal report submitted to your supervisor or principal investigator at a specified time (e.g., weekly, monthly).

In your research, you may also be asked to be responsible for generating meeting agendas or meeting minutes.
## Weekly Activity Log:

<table>
<thead>
<tr>
<th>Your Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Principle Researcher</td>
<td></td>
</tr>
<tr>
<td>Division/Department</td>
<td></td>
</tr>
</tbody>
</table>

### Monday

- 

### Tuesday

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### Wednesday

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### Thursday

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### Friday

-
Meeting Agenda

Meeting of: ____________________________
Date: _____________ Time: __________ Location: _________________________

Agenda Items

1. Introduction

2. Last Week’s Activities and Action Items

3. New Business

4. Next Week’s Planned Activities

5. Questions and Answers

6. Adjournment

Next Meeting Scheduled for: ____________________________
Title of Group/Meeting  
Date and Time  
Location

Present: list of all members present; begin with name of Chair, and add others in alphabetical order
Regrets: list of members unable to attend

<table>
<thead>
<tr>
<th>AGENDA ITEM</th>
<th>DISCUSSION</th>
<th>ACTION</th>
<th>WHO</th>
<th>WHEN</th>
<th>COMMENTS</th>
</tr>
</thead>
</table>
| 1. Follow the printed agenda for the meeting for numbered items | • Use bullet forms for discussion points  
• Note only key points of discussion or those that require action | • Specify exact actions required  
• If a Motion is made, write the motion as:  
Motion: Moved by:  
Seconded by:  
Carried/Approved (or not carried/not approved) | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. Next meeting date | | | | | |
| 5. | | | | | |
| 6. Adjournment | Time of adjournment | | | | |
Good vs. Weak
Minutes and Activity Logs

It is important to know not only what to document in meeting minutes and activity logs, but also how to write it effectively.

The following are examples of documentation in meeting minutes and activity logs.
Good vs. Weak
Minutes and Activity Logs

Good Meeting Minutes: Discussion

Two key members of the team presented the Boyer model and much discussion ensued on the merits of this model. More time is needed at the next meeting to decide on which model to adopt as time did not permit a lengthy discussion. Members felt this was a valuable discussion to continue.

Weak Meeting Minutes: Discussion

Richard started talking about the funding and everyone started arguing about the deadlines not being met. Covered new ideas for next research project.
Good vs. Weak
Minutes and Activity Logs

Good Activity Log: Action
Generated draft #1 of proposal and sent to supervisor (date).

Weak Activity Log: Action
Did research for Megan. Worked on project.
Managing Data

Software Tools:

- Excel – data is loaded onto a spreadsheet or worksheet into cells. Use help tools provided with the software.

- SPSS (Statistical Processes for the Social Sciences) – sophisticated data management tool – requires proprietary software installation (SPSS 16.0 for Windows)
Documentation Exercise

Conduct a meeting and prepare minutes.

The meeting purpose is to prepare a draft of a questionnaire or interview questions for your planned research project.