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Department of Architecture

Master 2 in **Construction Projects Management**
Course: **Data Analysis**

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CHAPTER 02

Data Collection

Part 02



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About course

4. Most common primary data collection methods

The most common primary data collection methods will be explained in this section, including **questionnaires, interviews, focus groups, observation** methods, all in detail, to help guide your research work.

1. Questionnaire Method



A questionnaire is a research instrument consisting of **a series of questions** for the purpose of gathering information from respondents (from a specific population)

This form is suitable to gather both **qualitative and quantitative data**.

2. Types of Questions used in a questionnaire

Each type of question serves a distinct purpose and can influence the quality and depth of the information obtained from respondents.

01 Closed-Ended Questions

02 Open-Ended Questions

03 Demographic Questions

04 Matrix Questions

05 Filter/Contingency Questions

06 Checklist Questions

2. Types of Questions used in a questionnaire

01 Closed-Ended Questions

Provide respondents with a limited set of predefined answer options. These questions can be further categorized into several subtypes:

a. Multiple-Choice Questions -: Respondents select one or more options from a list of choices.

Example: "Which safety measures do you regularly follow? (Select all that apply)

- Wearing personal protective equipment ☐
- Reporting unsafe conditions immediately ☐
- Keeping work areas clean and organized ☐

2. Types of Questions used in a questionnaire

01 Closed-Ended Questions

b-Yes/No Questions: Simple binary choices.

Example: "Do you wear protective equipment on the construction site? (Yes/No)"

c-Rating Scale Questions: Rate a statement on a scale (e.g., 1 to 5).

Example: "How satisfied are you with the current project management process?

(1 = Very Dissatisfied, 5 = Very Satisfied)

2. Types of Questions used in a questionnaire

01 Closed-Ended Questions

d-Likert Scale Questions: Measures agreement or disagreement with a statement.

Example: "I feel adequately trained to use the project management software.

(Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree)"

e-Ranking Questions: Rank options in order of preference.

Example: "Rank the following project management challenges in order of importance.“

(1 = Most important, 5 = Least important)



2. Types of Questions used in a questionnaire

02 Open-Ended Questions

Respondents provide their own answers without predefined options.

Example: "What challenges have you faced in completing tasks on schedule?"

03 Demographic Questions

Collect personal or demographic information.

Types:

- **Age**: "What is your age group? (20-30, 31-40, etc.)"
- **Gender**: "What is your gender? (Male, Female)"
- **Occupation**: "What is your current role in the construction project?"

2. Types of Questions used in a questionnaire

04 Matrix Questions

Multiple similar questions presented in a table format with a shared set of response options.

Example:

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Communication on the site is effective					
The safety measures are adequate					

05 Filter/Contingency Questions

These are used to guide respondents to different follow-up questions based on their previous answers.

Example:

- Q1: "Have you been involved in a project delay? (Yes/No)"
- Q2 (if yes): "What were the main reasons for the delay?"

2. Types of Questions used in a questionnaire

06 Checklist Questions

Respondents select all items that apply to them from a list.

Example: "Which of the following equipment do you regularly use on-site? (Check all that apply)"





3-Types of Questionnaires

01 Structured Questionnaires

-Contain **closed-ended questions** that provide respondents with predefined answer options, such as multiple-choice or Likert scale questions.

-Facilitate quantitative analysis and are often used in large-scale surveys.

02 Unstructured Questionnaires

-Include **open-ended questions** that allow respondents to provide their answers in their own words.

-They are useful for exploratory research and can yield rich qualitative data.

03 Semi-Structured Questionnaires

-Combine elements of **both structured and unstructured formats,** featuring a mix of closed and open-ended questions.

-This approach allows researchers to obtain specific information while also exploring respondents' perspectives in greater depth.

4-Questionnaire Administration Modes

There is different methods used to distribute and collect responses from participants. The choice of mode affects response rates, data quality, and the ease of administration

01 **Face-to-face questionnaire administration,** where an interviewer presents the items orally.(asking questions and recording answers.)

02 **Paper-and-pencil questionnaire administration**, Participants complete the questionnaire themselves without any direct interaction with the researcher. (kabir,2016)

03 **Telephone Surveys**: The questionnaire is administered over the phone, with the interviewer asking questions and recording responses.

4-Questionnaire Administration Modes

There is different methods used to distribute and collect responses from participants. The choice of mode affects response rates, data quality, and the ease of administration

04 **An online questionnaire** : is a cost-efficient option; however, you should consider the possibility of missing samples due to problems with internet access.

different online survey services can be used which provide questionnaires for the purpose of study, and then the collected data can be easily added to the analyzing software (Taherdoost, 2021)





4-Questionnaire Administration Modes

Factors to Consider When Choosing an Administration Mode

1-Target Audience: Consider their access to technology and comfort with different modes (e.g., older populations may prefer phone or face-to-face, while younger people might prefer online).

2-Budget: Some methods (e.g., face-to-face) can be costly, while online and email surveys are generally cheaper.

3-Questionnaire Complexity: Complex surveys may require interviewer administration to clarify questions.

4-Time: Some modes (e.g., mobile surveys) may yield quicker responses than others.

Steps in Designing a Questionnaire

01 Define the Research Objectives

Clearly articulate the purpose of the questionnaire and the specific research questions it aims to address. This foundational step guides the entire design process and ensures that the questions are relevant to the research goals **(Aithal & Aithal, 2020; Rowley, 2014)**.

02 Identify the Target Population

Determine the demographic characteristics of the respondents from whom data will be collected. Understanding the target population helps in tailoring the questionnaire to their specific context and ensuring that the language and content are appropriate (Rowley, 2014; Govender et al., 2014).

03 Develop the Questionnaire Items

Create questions that align with the research objectives. This involves deciding on the types of questions to include (e.g., closed-ended, open-ended, Likert scale) and ensuring that they are clear, concise, and unbiased (Rowley, 2014; Pluye et al., 2014).

Steps in Designing a Questionnaire

04 **Pilot Testing**

Conduct a pilot test with a small sample of the target population to identify any issues related to question clarity, format, and overall flow. Feedback from the pilot test can be used to refine the questionnaire before full-scale administration (Aithal & Aithal, 2020).

05 **Revise the Questionnaire**

Based on the feedback obtained during the pilot testing, make necessary revisions to improve clarity, relevance, and comprehensiveness. (Rowley, 2014; Aithal & Aithal, 2020).

06 **Determine the Mode of Administration**

Decide how the questionnaire will be distributed (e.g., online, paper-based, face-to-face). (Rowley, 2014; Govender et al., 2014).

Steps in Designing a Questionnaire

07 Administer the Questionnaire

Distribute the finalized questionnaire to the target population, ensuring that instructions for completion are clear. Monitor the response rate and follow up as necessary to encourage participation (Aithal & Aithal, 2020).

08 Analyze the Data

Once the data is collected, analyze it using appropriate statistical methods. (Aithal & Aithal, 2020). Ensure that the analysis aligns with the original research objectives.

09 Report the Findings

Present the results in a clear and organized manner, highlighting key findings in relation to the research objectives. Include discussions on the implications of the findings and any limitations of the study (Rowley, 2014).

Advantages and Disadvantage of Questionnaires

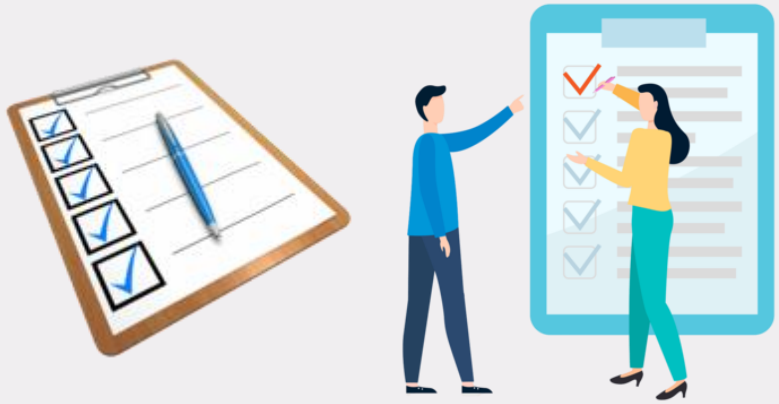
01 Advantages of Questionnaires

- Collecting a large amount of data from a large sample size
- The possibility of gaining high accurate data
- Analyzing the results easily by entering the achieved data to the software quickly in the majority of cases
- The opportunity of more objective and scientific analysis; (Frechtling, 2002; Kabir, 2016; Taherdoost, 2021)

Advantages and Disadvantage of Questionnaires

02 Disadvantages of Questionnaires

- The possibility of misunderstanding the questions which can overshadow the answers
- Low response rates if respondents' low interests cannot be addressed to answer questions (Frechtling, 2002)
- Useless and wrong answers are prevalent (Pandey & Pandey, 2015).
- Determining the reliability of answers is not possible (Taherdoost ,2021)



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Thank You!