Designing Reliable and Valid Surveys

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Introduction

- **Learning Objectives:**
  - **Participants will be able to identify when surveying is appropriate or inappropriate.**
  - **Participants will be able to identify the steps of good survey design.**
  - **Participants will be able to write and evaluate reliable and valid survey items with good response formats.**
  - **Participants will be able to describe the benefits of collecting data in an electronic format.**
  - **Participants will be able to write and evaluate effective cover letters.**
  - **Participants will be able to design a survey with consideration of basic data analysis principles.**

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Introduction

- **Most surveys are designed for a specific project**
- **Goal of survey design is to maximize response rate**
- **Survey items come from project mission and goals AND research questions**
- **Survey design developed along with sampling methods to facilitate collecting minimal but sufficient data to generalize from sample to population**
- **Many of the following recommendations apply to designing all instruments including interviews**

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Tasks for Survey Design

1. **Develop goals and research questions**
2. **Choose data collection method –** *Is surveying the best method?*
3. **Outline topics and draft items**
4. **Choose response formats**
5. **Write and edit items**
6. **Determine sequence of items**
7. **Determine physical characteristics of the survey**
8. **Review and revise the survey**
9. **Pilot test and revise the survey**
10. **Administer the survey**
11. **Analyze the data and report the results**

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Task #1
Develop Goals and
Research Questions

Develop Goals and
Research Questions

- **What are the** *goals* **of the study?**
- **What are the** *research questions***, that is what specifically do you want to know as a result of the study?**
- **What** *management decisions* **will be made based on the data?**
- **Surveys can only be evaluated and validated against the goals and research questions.**
- **Seek consultation from:**
  - **Literature**
  - **Colleagues in other organizations who may have done surveys**
  - **Colleagues within your organization who have a vested interest in the results**
  - **Supervisors who have a vested interest and the power to make it happen**

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Survey Objectives

1. **To identify student characteristics associated with leaving the institution prior to graduation**

2. **To identify institutional characteristics associated with leaving the institution prior to graduation.**

3. **To identify what the institution could do to reduce the current attrition rate.**

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Research Questions

1. **What are the student demographic characteristics associated with attrition from the institution prior to graduation?**

2. **What are the cognitive and noncognitive student characteristics associated with student attrition?**

3. **What aspects of the institutional environment do students indicate contribute to their decision to leave the institution?**

4. **How do students rate current retention services / programs and what additional services / programs do students perceive would help them to stay at the institution until graduation?**
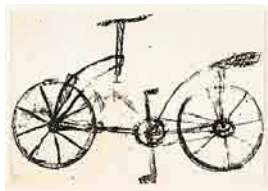
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Task #2
Choose Data Collection Method
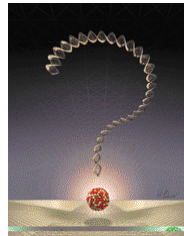
Choose Data Collection Method

- **Is surveying the most appropriate method to answer your research questions?**
- **Would interviews or focus groups be better?**
- **If surveying is the best method, will it be a mailed survey, telephone survey, e-mail survey, or Web-based survey?**

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Task #3
Outline Topics and
Draft Items

Outline Topics and
Draft Items

- **What topics need to be covered to answer the research questions?**
- **What items will fully address these topics?**
- **Do not include topics or items that are merely "interesting to know"**
- **Draft reliable and valid items**
- **Six types of items (Patton, 1990, pp. 290-291):**
  - **Experience / Behavior Questions**
  - **Opinion / Values Questions**
  - **Feeling Questions**
  - **Knowledge Questions**
  - **Sensory Questions**
  - **Background / Demographic Questions**

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Outline Topics and Draft Items

- **Draft reliable items**
  - Will respondents interpret the item in the same way on another day?
  - Will the item be interpreted in the same way by all respondents?
  - Will the item be interpreted by the respondents in the way you have intended?
- **Draft valid items**
  - Will the item elicit the information you want?
  - Will the item elicit accurate and relevant data?
  - When you know the answers to these items will you know the answers to your research questions?

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Draft Reliable and Valid Items

- **Work in small groups to draft questions for a retention survey to answer the research questions previously developed**
- **No need to think about response formats yet**
- **Use tips for drafting reliable and valid items on the following 3 slides**

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Outline Topics and Draft Items

- **Tips for drafting reliable and valid items**
  - **No double-barreled items -- address only one issue**
  - **Break-up complex items into series of shorter, simpler items**
  - **Use skip patterns when items do not apply to all respondents**
  - **Make sure that the respondents will have the knowledge necessary to answer the item**
  - **Make items easy to answer so they do not require a lot of thought or interpretation**

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Outline Topics and Draft Items

- **Tips for drafting reliable and valid items**
  - **When writing threatening or embarrassing items:**
    - **Mix in with other more innocuous items**
    - **Give a range when asking age or income, etc.**
    - **Is the survey confidential or anonymous?**
    - **Write the item objectively; not suggesting a particular response**
    - **Ask respondent how others might respond**

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Task #4
Choose Response Formats

Choose Response Formats

- **Will the responses be open-ended or closed?**
- **How will the data be loaded into the computer?**
- **How will the data be analyzed?**

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Choose Response Formats

- **Open-ended response formats:**
  - **Allow respondents to express their own views in their own ways**
  - **Are appropriate when there are too many possible answers to list**
  - **Are more appropriate for interviews and focus groups**
  - **Can be used to help determine closed responses**
  - **Yield data that may be more difficult to analyze**
  - **Responses may not be as precise or clear**
  - **Responses may be illegible**
- **Good to offer at least one open-ended item in a survey with closed items**

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Choose Response Formats

- **Closed Question Formats:**
  - **Two Types**
    - **Dichotomous (T / F; Y / N)**
    - **Multichotomous (multiple choice, ranking, rating, Likert type scales)**
  - **Respondents provide more reliable (consistent) answers**
  - **Researchers can interpret the answers more reliably**
  - **Respondents fit themselves into a relatively small number of categories**
  - **Facilitates ordinal or interval data so that items can be added together to form scales**
  - **Lose richness of data**
  - **May offer the wrong responses or the response formats may not fit the item**

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Add Response Formats to Previously Drafted Questions

- **Work in small groups to add formats to the questions you drafted**
- **Refer to the tips for designing closed question formats on the following 4 slides**
- **You may have to edit some of your questions to match your response formats**

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Choose Response Formats

- **Closed Question Formats:**
  - **Tips for designing closed question formats:**
    - **Use 3-5 categories on a rating scale (SA --- SD)**
    - **Write mutually exclusive response options**
    - **Supply enough categories for every conceivable response**
    - **Use "don't know" when some respondents will not know**
    - **Balance scales between positive and negative responses**
    - **Label midpoint accurately (neutral; neither agree not disagree) or do not use midpoint (forced choice)**
    - **Arrange responses vertically**
    - **Repeat response formats at the top of each page**
    - **Do not change response formats too frequently but do change occasionally**

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Choose Response Formats

- **Closed Question Formats:**
  - **Tips for designing closed question formats:**
    - **Specify how respondents should answer fill-in-the-blank items (e.g., "What is your age?" _____years)**
    - **Items for rating scales must be stated positively or negatively**
    - **Items for rating scales must avoid asking two questions that may have different ratings**
    - **Should respondents choose one response or all that apply?**
    - **Use SA / A/ D / SD rather than 1 / 2 / 3 / 4**
  - **Tips may be modified depending on whether the survey is administered as a paper and pencil survey, or uses scan sheets, Bubble Publishing, or Inquisite**

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