

Simulation Exercise-2: Managing a Retail Store

Objective:

Design a research study to evaluate the effectiveness of the new training program.

Background:

You are part of a research team in a vocational education institute tasked with evaluating the effectiveness of a new workplace training program designed to enhance technical skills among entry-level technicians in the automotive industry. The program integrates both on-the-job training and classroom-based instruction. Your goal is to determine the impact of the program on the skill levels and job performance of the participants.

Data Provided:

1. Participant Information

Total Technicians in Training: 100

Demographics:

- **Gender:** 80 male, 20 female
- **Age Range:** 18-35 years

2. Data Collection Parameters

- **Survey Participants: 30 (30% of total)**
 - **Likert Scale Questions:** 10 (1-5 rating scale on training effectiveness)
 - **Multiple Choice Questions:** 5 (on technical aspects)
 - **Open-Ended Questions:** 5 (feedback on program improvements)
- **Interview Participants: 10 (10% of total)**
 - **Semi-structured Interview Questions:** 10 (focused on personal experiences and perceived program impact)
- **Observation Checklists for Sessions: 5 sessions observed**
 - **Checklist Focus Areas:** Participant engagement, application of tools, instructional clarity

3. Data Analysis Techniques

- **Quantitative Data:**
 - **Statistical Methods:** Paired t-tests to compare pre- and post-training assessments; calculation of mean, standard deviation; statistical significance set at $p < 0.05$.
- **Qualitative Data:**
 - **Analysis Method:** Thematic analysis to identify themes from interview responses and open-ended survey questions.

4. Ethical Considerations

- **Informed Consent:** Required from all participants, detailing the study's purpose, voluntary participation, and confidentiality assurances.
- **Data Confidentiality:** Use of numerical identifiers and secure data handling protocols to protect participant anonymity.

5. Expected Challenges and Solutions

- **Low Response Rate:** Implementation of strategies such as reminders, incentives (e.g., small rewards), and emphasizing the importance of feedback for program improvement.
- **Data Variability and Inconsistencies:** Cross-validation of data through multiple collection methods and careful data cleaning procedures.

6. Metrics for Impact Assessment

- **Skill Level Assessment:**
 - Pre-training and Post-training Tests: Conducted to quantitatively measure skill improvement (scored on a scale of 0-100).
- **Job Performance Metrics:**
 - Error Rates: Measured before and expected to decrease by 20% post-training.
 - Task Completion Speed: Expected to improve by 15% after training completion.

7. Reporting Results

- **Deliverables:**

- **Presentation:** 20-slide deck summarizing the methodology, findings, and actionable recommendations.
- **Written Report:** 15-page detailed document outlining the research process, data analysis, results, and suggestions for future program enhancements.

Task:

Using the provided data, learners must assess the impact of a newly introduced training program on the technical skills of entry-level automotive technicians.

Guidelines:

1. Formulate a Research Question

- Develop a straightforward research question: “Does the new training program improve the technical skills of entry-level automotive technicians?”

2. Design the Study

- Choose a Research Approach: Opt for a simple quantitative approach using a pre- and post-training survey.
- Create a Survey: Design a brief survey with:
 - 5 Likert scale questions (rate 1-5) to measure satisfaction and perceived skill improvement.
 - 2 open-ended questions to gather feedback on what participants liked best and what could be improved.

3. Conduct the Survey

- Distribute the Survey: Email the survey to all trainees (assume 30 participants) at the start and end of the training program.

4. Analyze Survey Responses

- Quantitative Analysis: Calculate the average ratings before and after the training.
- Qualitative Analysis: Summarize common points from the open-ended responses.

5. Manage Ethical Concerns

- Ensure all participants understand the survey is voluntary and responses are anonymous.

6. Handle Challenges

- Send reminders to increase response rates and ensure accurate data collection.

7. Prepare and Present Findings

- **Create a Brief Report:** Summarize the survey findings, highlighting any significant changes in skill levels and areas for improvement.
- **Develop a Presentation:** Prepare a 5-slide PowerPoint presentation that outlines the study results and practical recommendations.

Deliverables:

- **Survey Instrument:** The designed survey shared with the trainees.
- **Research Findings Report:** A concise document summarizing the survey results and analysis.
- **Presentation Slides:** A simple PowerPoint presentation to communicate the study's findings to stakeholders.