

## Advanced research

### 1. Advanced research methodologies:

Advanced research methodologies refers to a sophisticated and precise approaches, utilizing specialized techniques and expertise to thoroughly investigate research questions with rigor.

#### A) **Experimental designs:**

**Strengths:** enables precise control over variables, making it useful for testing hypotheses in controlled settings.

**Limitations:** findings may not apply broadly beyond specific conditions, and ethical concerns may arise in certain experimental designs.

#### B) **Case studies:**

**Strengths:** offers detailed insights into real-life situations, useful for exploring intricate aspects of a subject and generating hypotheses for further research

**Limitations:** focusing on a specific case makes it challenging to generalize, and findings may be influenced by subjectivity and research bias.

#### C) **Mixed-method approaches:**

**Strengths:** blends qualitative and quantitative data to understand a research question thoroughly. Triangulation enhance the reliability and validity of findings.

**Limitations:** needs expertise in both qualitative and quantitative methods. The integration process can be complex, requiring careful planning to maintain methodological rigor.

## 2. Critical literature review:

Before moving to critical literature review we need to know what a literature review is.

Literature review is a summary of existing research on a specific topic, helping to understand what is already known and identifying gaps in knowledge. Meanwhile, a critical literature review assesses and analyzes existing research on a topic, evaluating the strengths, weaknesses, and contributions of each study to inform the reader about the literature's quality and relevance to the research question.

- **Advanced literature review techniques:**

### A). Thematic Synthesis:

- Recognize common themes throughout the literature.
- Examining the evaluation of things over time or across various contexts.

### B). Meta-Analysis:

- Conducting a systematic review and statistically analysing quantitative findings across multiple studies.
- Evaluating the overall impact and checking for variations among studies.

### C). Conceptual Synthesis:

- Illustrating conceptual frameworks outlined in the literature.

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- Assessing how key concepts and theoretical perspectives are interconnected.

#### **D). Criticizing methodologies:**

- checking how the studies you reviewed were conducted.
- evaluating the trustworthiness (whether it is trusted or not), accuracy (whether it is precise or not), and applicability (the practicality) of research designs.

#### **E). Identifying Research Gaps:**

- Points out where the current literature lacks.
- Suggest potential research paths addressing the identified gaps.

### **3. Quantitative data analysis:**

- **Regression Analysis:**

- **Purpose:** find links between variables and predict outcomes.
- **Types:** simple linear regression for one predictor, multiple linear regression for multiple predictors.
- **Application:** find the important factors affecting the outcome and assesses how each contributes.

- **Factor Analysis:**

- **Purpose:** reveal hidden factors that influence the observed variables.

- **Types:** Exploratory Factor Analysis (EFA) to identify latent factors, Confirmatory Factor Analysis (CFA) to test predefined factor structures.

- **Application:** simplify data, grasp underlying structures, and confirm the validity of measurement instruments.

#### 4. Qualitative data analysis:

- **Narrative Analysis:**

- **Purpose:** find and understand the stories and narratives in qualitative data.

- **Process:** recognize central themes, character evolution, and plot structures.

- **Application:** gain a profound insight into individual experiences and viewpoints.

- **Grounded Theory:**

- **Purpose:** formulated theories based on the data, letting themes and concepts naturally emerge

- **Process:** utilizing iterative coding, ongoing comparison, and theoretical sampling in the research process.

- **Application:** create hypotheses and theories directly derived from the collected data.

#### 5. Ethical considerations in advanced research:

##### **What is ethical consideration in advanced research?**

Ethical consideration in advanced research involve treating participants in a professional way, getting their permissions, keeping things confidential, and being honest when reporting

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findings. It is also about considering how the research might affect society and avoiding conflicts of interest.

### **Complex Ethical Dilemmas:**

#### **1. Informed consent in experimental designs:**

- Striking a balance between obtaining informed consent and preserving the integrity of experiment.
- Making sure participants comprehend possible risks and benefits.

#### **2. Confidentiality in Qualitative Research:**

- Keeping participants' identities confidential in thorough qualitative studies.
- Securing private information while preserving the depth of the data

#### **3. Dual role of researchers:**

- Dealing with situations where researchers play dual roles as both researchers and service providers.
- Handling situations where conflicting interests may arise.

#### **6. Importance of Ethical Research Practices:**

- **Maintaining Trust:**

- Building and sustaining trust with participants, stakeholders, and the wider community.

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- Acknowledging that trust forms the basis for the validity and reliability of research findings.

- **Human rights and dignity:**

- Respecting the rights and dignity of research participants.
- Making sure research doesn't harm or violate the rights of individuals or communities.

- **Scientific Integrity:**

- Encouraging honesty and integrity in scientific practices.
- Dealing with problems related to research misconduct and plagiarism.

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