

Deductive and Inductive Approaches in Philosophy of Social Science Research Prof Rajeev Kumar

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Deductive/Inductive Approaches

- In social science research, deductive approach begins with a theory, test hypothesis through Data collection
- In Inductive approach, research begins with question/ questions, followed by data collection

Analysis of Data

- In deduction approach, research involves in collecting data, from a survey. Then, results/findings are analysed whether the findings approve or disapprove hypothesis/theory.
- In Inductive approach, research study explored data for regularities, patterns and themes and form generalisations and subsequently a theory.

Which approach is better or more effective?

- Deductive approach : hypothesis testing as the focus of research. Scientific method/ quantitative research
- Inductive approach : only data analysis highlights the truth. Observatory / qualitative research.

Researcher may adopt both

- Beginning of research : study explores its enquiries, questions, objectives, plannings, and skills/ methods and proceed, only then may change its strategy.
- Thus, both approaches possibilities : study begins with theory to data and analyse them, further may accept the need to modify theory.
- Similarly, the study when moves from data to theory and analyse the theory on the basis of data observation, then it can sets or reevaluate its strategy

Both Approaches : Two Alternatives

deductive and inductive approaches offer two alternatives in the production of knowledge.

- **Deduction approach :**

- (a) findings on the basis of reasoning and logic
- (b) evolve theories and assumptions from general or universal
- (c) conclusion based on generally accepted statements or facts

- **Induction approach :**

- (a) I has element of probability.
- (b) conclusion from generalised to particular instances.
- (c) forming a generalisation based on what is known already or observed

Types of Research & the Approaches

1. Action research/ Ethnography : inductive approach.
2. Experiment Research : deductive approach.
3. Case study/ empirical investigation : inductive and deductive approach.
4. Grounded theory/ theory building: mixed approach.
5. Descriptive study : mixed approach.

Inductive Approach: Qualitative Research

- A qualitative/ ethnographic research :
- Studies in natural settings,
- Attempts to interpret them,
- Utilise already available informations
- Collects variety of empirical materials. I.e. a case study, personal experience, introspective, life story, interviews, observational history, interaction and visual texts.
- Develop hypotheses,
- Analyse attitudes, and beliefs of the people
- Happens to be broad, vague and inclusive researches

Deductive Approach : Quantitative Research

- Empirical/ quantitative research
- Research already been conducted
- Develop an idea about extending or amending its strategies
- New hypothesis tested
- New data collected, documented, and analysed
- Findings in the context of hypothesis
- Present details of adopted methodology for others to study, emulate, or test

Research Steps

- Deductive
- General inquiry of already existed literature theories
- Define topic of interest
- Theory involved
- Hypothesis
- Data collection
- Data analysis
- hypothesis testing
- approve or disapprove the hypothesis
- sharing the findings

Inductive approach: observation , broad generalisation, and build theory.

During the analysis of their new data, and using the patterns observed, suggests themes for further study.

Inductive



(A) quantitative research:

- consideration of existing theories
- analysis by comparing them with the tested hypothesis.

(B) qualitative research:

- no formal hypothesis testing
- form generalisations based on the strength of the data and emerged during study
- Data collection and data analysis interactive.
- regular data collection
- analysis freedom

(A) quantitative research :

- Data collection and data analysis distinct, and non-discretionary
- the test can be precisely replicated.

Advantages and Disadvantages

❖ **Mixed approach :**

- Deductive approach establishes strong theoretical connections to the study
- Inductive approach provide opportunity of a more exploratory inquiry.

❖ **Deductive and Inductive approaches are not two sides of the same coin**

- they are two ends of a continuous process of investigation/enquiries/study/research
- Deductive research : involve one dimension, and measurable
- Inductive research : associated with depth of inquiry and descriptions about phenomena.
- Mixed methods can be adopted in the middle of study/ enquiry if research demands expansion

Common Perception

- truth can not be proved accurately and appropriately
- deductive and inductive approaches help in coming close to truth
- there is no such thing as proof , there are only conclusions drawn from facts and observations

hypothesis can not be completely proved but collected data or evidence move study close to truth

Truth is subjective

Truth is objective too

Deductive and inductive approaches are both based on evidence.

Types of Evidence

- Direct or experimental evidence : depends on observations and experiments
- Circumstantial evidence : based on the assumption/assumptions

The important utility of circumstantial evidence is forming hypotheses that can be tested with experimental evidence.

- Argumentative evidence : conclusions generally based on facts but this evidence is unreliable because the facts are not directly testing a hypothesis. (for example, seeing a spot in the sky and presume it an alien aircraft is argumentative evidence)
- Testimonial evidence : presentation of an opinion accepted as unreliable, as people may be biased and may not be any direct evidence to support their testimony.

Types of Inductive Approach

- Drawing conclusions from facts
- Using logic.
- Draws a conclusion from a generalisation.
- Draws a conclusion based on statistics.
- Draws a conclusion based on shared properties of two groups.
- Draws a conclusion based on a prediction on the basis of past sample
- Draws a conclusion based on a connection which has a cause or can be expressed

Types of Deductive Approach

- Begins with a broad truth or statement (for example, all men's life is temporary and Pt Dean Dayal Upadhyay as a human being was mortal)

There are two statements and second statement draws conclusion by previous one cannot be false.

Thus, Deductive approach is black and white; a conclusion is either true or false and cannot be partly true or partly false

Globally Renowned Philosophers

Plato (429–347 BC)

Believed that all things are divided into the visible and can be understood. The comprehensible things can be known through deduction and are true knowledge.

Aristotle(385-323 BC)

Preferred inductive approach, emphasised the need for observations to support knowledge, believed that we could reason only from phenomena that can be recognised .From there, we use logic to prove the causes of what we concluded

Newton (1643-1727)

His innovative work was based on observations

Conclusion

- Every discussion of logic involves inductive and deductive approaches in the philosophy of social science research
- Inductive approach try to prove a general principle by highlighting a group of specific events, trends, or observations
- While deductive approach builds up to a specific principle through a numbers of increasingly narrow statements.

Thank You!