

POL312

LOGIC AND METHODS OF POLITICAL SCIENCE RESEARCH



Course video is available on our app

- **Course code: POL 312**
- **Course title: Logic and Methods of Political Science Research**
- **Course credit load: 2**

SERIES 1: Political Science and the Scientific Method

Series outline

Part 1: Foundations of Political Science as a Discipline

- 1.1 Defining Political Science
- 1.2 The Nature of Politics and Political Inquiry

Part 2: The Scientific Method in Political Research

- 1.2.1 Principles of Scientific Study
- 1.2.2 Steps in the Scientific Method

Part 3: Application of Scientific Method to Political Science

- 1.3.1 Relevance of Scientific Method to Political Studies
- 1.3.2 Limitations and Critiques of Scientific Approaches

Part 4: Linking Scientific Method to Research Practice

- 1.4.1 From Theory to Research Questions
- 1.4.2 Integrating Variables and Hypotheses

Introduction

Political Science seeks to explain how societies organise power, authority, and governance, and why these arrangements matter to citizens and institutions. To study politics meaningfully, scholars must go beyond opinion and speculation, adopting systematic approaches that allow them to generate reliable knowledge. This Series introduces you to the scientific foundations of Political Science, helping you appreciate why the discipline is regarded as both an art and a science, and why the scientific method is central to its practice.

The aim of this Series is to equip you with a clear understanding of how Political Science employs the scientific method to investigate political phenomena, and to prepare you to apply these principles in your own research.

We shall commence this Series by examining the foundations of Political Science as a discipline, focusing on its definition and the nature of political inquiry. Next, we will explore the scientific method itself, considering its principles and the steps involved in conducting scientific study. Following that, we will apply the scientific method to Political Science, highlighting its



relevance as well as its limitations. Finally, we will wrap up by linking the scientific method to research practice, showing how theory connects to research questions, variables, and hypotheses. This sequential flow will provide you with both conceptual grounding and practical orientation for the rest of the course.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- SLO 1.1** define Political Science and explain its disciplinary foundations,
- SLO 1.2** analyse the nature of politics and the role of political inquiry,
- SLO 1.3** explain the principles of the scientific method and outline its sequential steps,
- SLO 1.4** apply the scientific method to the study of political phenomena,
- SLO 1.5** evaluate the limitations and critiques of scientific approaches in Political Science, and
- SLO 1.6** demonstrate how to link theory to research practice by formulating research questions, identifying variables, and developing hypotheses.

1.1 Foundations Of Political Science As A Discipline

1.1.1 Defining political science

Political Science is the systematic study of politics, government, and power relations. It examines how societies organise authority, how decisions are made, and how policies affect citizens and institutions. Unlike casual discussion about politics, Political Science relies on structured methods to generate knowledge that is reliable and testable.

The discipline has its **historical roots** in philosophy, with thinkers such as Plato and Aristotle laying the groundwork for political inquiry. Over time, it evolved into a distinct field that combines theory with empirical research. The **scope of Political Science** includes areas such as political theory, comparative politics, international relations, public administration, and policy analysis.

Fill in the blank: Political Science is the systematic study of _____, government, and power relations.



THE FIVE MAIN BRANCHES OF POLITICAL SCIENCE (OER)

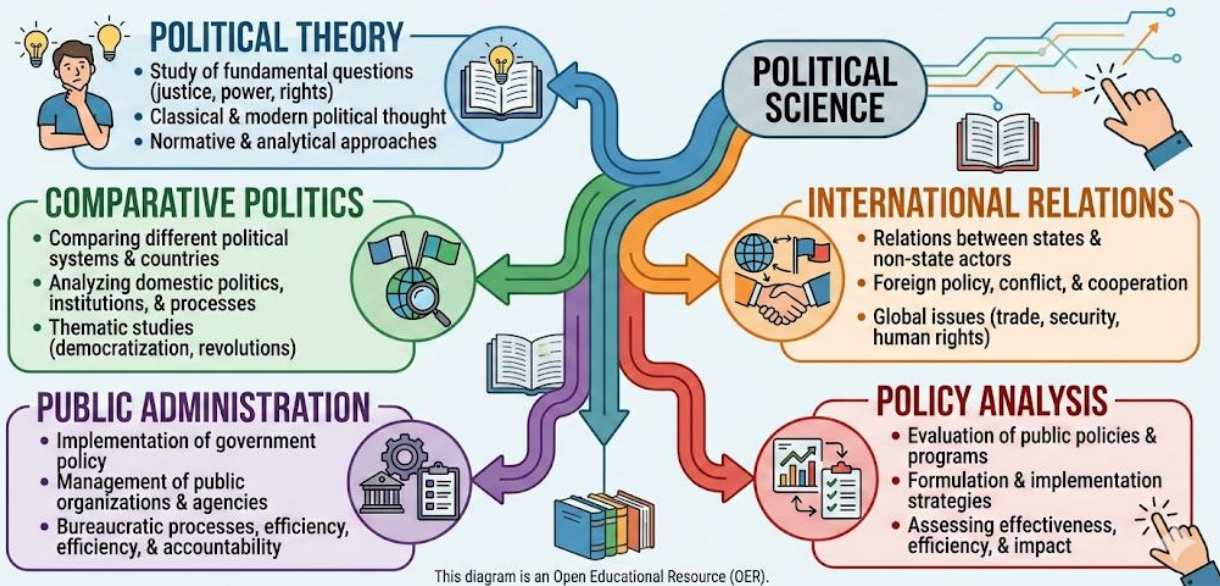


Diagram showing branches of Political Science (e.g., political theory, comparative politics, international relations, public administration, policy analysis). Caption: Figure 1.1 Branches of Political Science

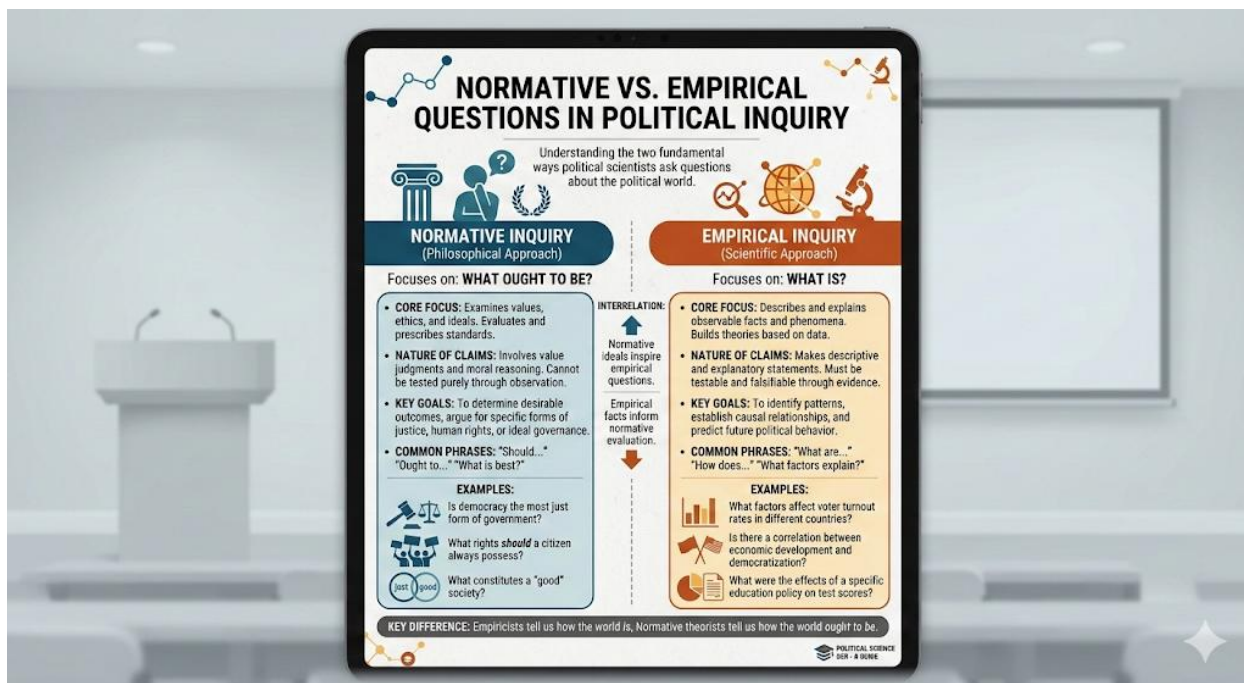
1.1.2 The nature of politics and political inquiry

Politics refers to the processes through which power and resources are distributed within a society. It involves negotiation, conflict, cooperation, and decision-making among individuals and groups. At its core, politics is about **power relations**, meaning who gets what, when, and how.

Political inquiry is the process of asking structured questions about political phenomena. It seeks to explain patterns of behaviour, evaluate institutions, and predict outcomes. Inquiry in Political Science is guided by both normative questions (what ought to be) and empirical questions (what is).

Fill in the blank: Politics is essentially about _____ relations, meaning who gets what, when, and how.





Box 1.1 Key features of political inquiry

Pilot questions 1.1

Which ancient philosophers are considered foundational to Political Science?

What are the five main branches of Political Science?

Define politics in terms of power relations.

Distinguish between normative and empirical questions in political inquiry.

What is the scope of Political Science as a discipline?

1.2 The Scientific Method In Political Research

1.2.1 Principles of scientific study

Scientific study refers to the systematic process of investigating phenomena using structured methods that emphasise evidence, logic, and replicability. In Political Science, this means moving beyond personal opinions or ideological positions to adopt approaches that can be tested and verified. The aim is to produce knowledge that is both reliable and valid.

The principles of scientific study include **objectivity**, which means minimising bias in research; **systematic observation**, which involves collecting data in an organised manner; and **replicability**, which ensures that findings can be tested again under similar conditions. These principles help Political Science maintain its credibility as a discipline.

Fill in the blank: One of the key principles of scientific study is _____, which ensures that findings can be tested again under similar conditions.



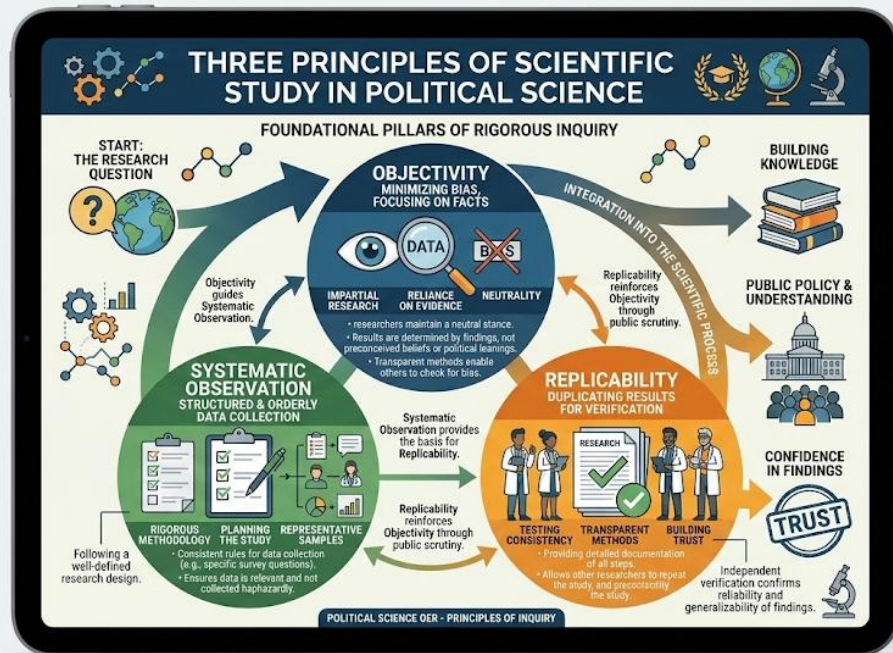


Diagram showing principles of scientific study (objectivity, systematic observation, replicability). Caption: Figure 1.2 Principles of Scientific Study

1.2.2 Steps in the scientific method

The **scientific method** is a structured sequence of steps used to investigate questions and generate knowledge. In Political Science, these steps guide researchers in framing problems, collecting evidence, and drawing conclusions.

The steps typically include:

Observation: Identifying a political phenomenon or issue that requires explanation.

Formulation of a research question: Narrowing the focus to a specific, testable inquiry.

Hypothesis development: Proposing a tentative explanation or prediction.

Data collection: Gathering relevant information through surveys, interviews, documents, or statistical records.

Data analysis: Examining the evidence to test the hypothesis.

Conclusion: Drawing inferences and relating findings back to the original question.

Fill in the blank: In the scientific method, the step that involves proposing a tentative explanation or prediction is called _____ development.



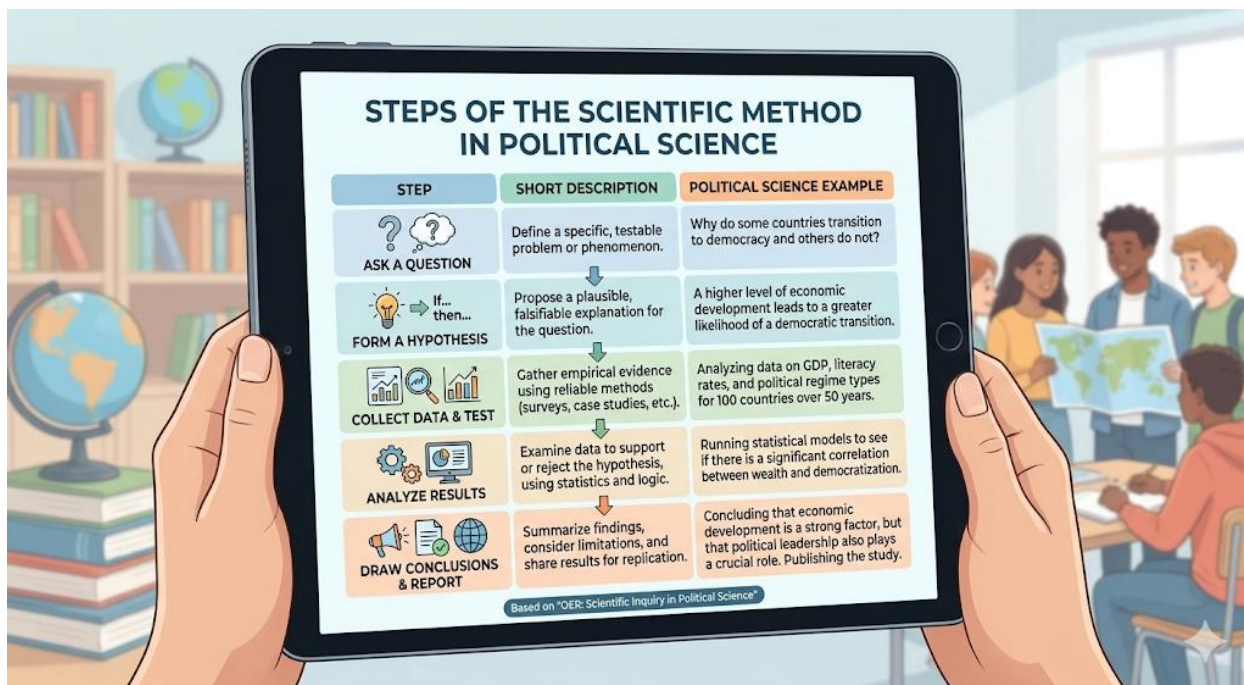


Table 1.1 Steps in the Scientific Method

Pilot questions 1.2

What are the three main principles of scientific study?

Define objectivity in the context of Political Science research.

List the sequential steps of the scientific method.

Which step of the scientific method involves gathering information through surveys or interviews?

Why is replicability important in Political Science research?

1.3 Application Of Scientific Method To Political Science

1.3.1 Relevance of scientific method to political studies

The **scientific method** is highly relevant to Political Science because it provides a structured way of investigating complex political phenomena. Politics often involves competing interests, diverse perspectives, and dynamic processes. By applying the scientific method, researchers can move beyond speculation and ideology to produce evidence-based explanations. This strengthens the credibility of Political Science as a discipline and allows its findings to inform policy-making, governance, and public debate.

For example, when studying voter behaviour, researchers can formulate hypotheses about why people vote in certain ways, collect survey data, and analyse patterns to test those hypotheses. This process ensures that conclusions are not merely based on assumptions but are supported by empirical evidence.



Fill in the blank: The scientific method strengthens the credibility of Political Science by ensuring that findings are based on _____ evidence.



Image showing a researcher conducting a political survey with citizens. Caption: Plate 1.1
Application of Scientific Method in Political Studies

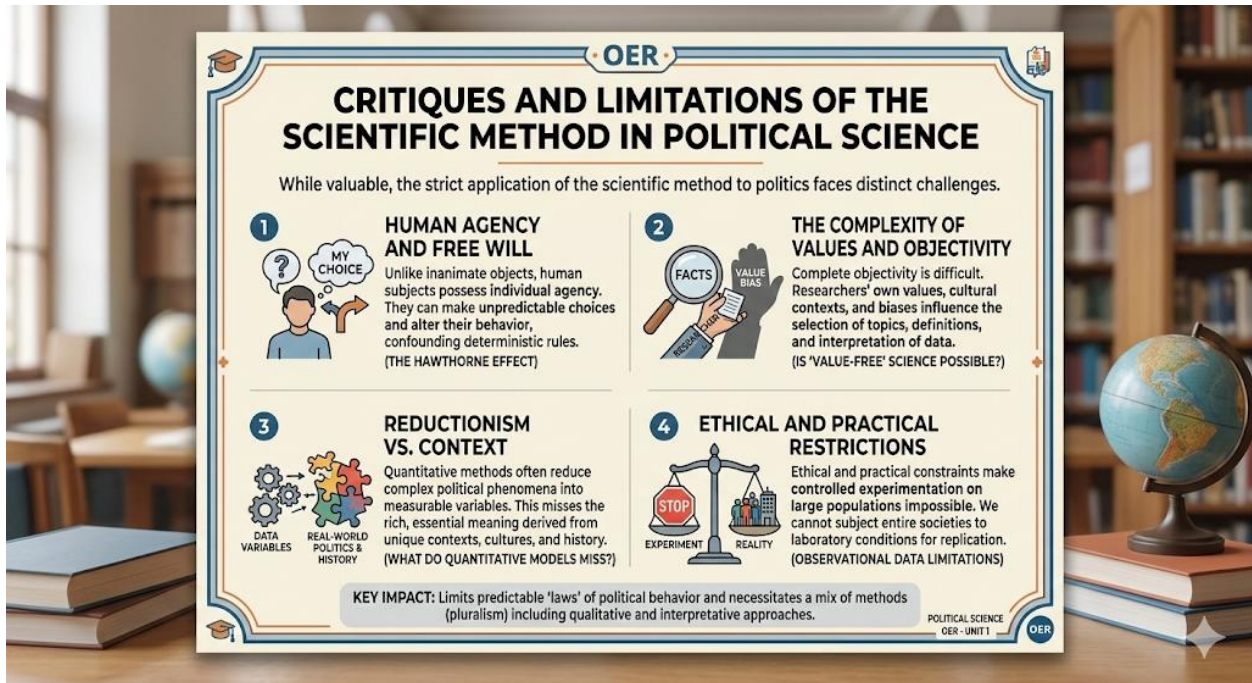
1.3.2 Limitations and critiques of scientific approaches

While the scientific method is valuable, it is not without limitations. Politics deals with human behaviour, values, and cultural contexts, which are often difficult to measure with precision. Some critics argue that Political Science cannot be fully scientific because it involves normative questions about justice, fairness, and morality that go beyond empirical observation.

Another limitation is that political phenomena are influenced by unpredictable events, such as revolutions, crises, or sudden policy changes. These factors make it challenging to apply rigid scientific models. Nevertheless, acknowledging these critiques helps researchers remain cautious and reflective in their work, balancing scientific rigour with sensitivity to context.

Fill in the blank: One limitation of applying the scientific method to politics is that political phenomena are influenced by unpredictable _____.





Box 1.2 Critiques of the scientific method in Political Science

Pilot questions 1.3

Why is the scientific method relevant to Political Science?

Give an example of how the scientific method can be applied to studying voter behaviour.

What type of evidence strengthens the credibility of Political Science research?

Identify one limitation of applying the scientific method to politics.

Why do critics argue that Political Science cannot be fully scientific?

1.4 Linking Scientific Method To Research Practice

1.4.1 From theory to research questions

Theory in Political Science refers to a set of ideas or frameworks that explain political behaviour, institutions, or processes. Theories provide the foundation for research by offering concepts and propositions that can be tested. To make theory useful in practice, researchers must translate broad ideas into **research questions**, which are specific inquiries that guide investigation.

For example, a theory about voter behaviour might suggest that socio-economic status influences voting patterns. A corresponding research question could be: "How does income level affect voter turnout in national elections?" This transformation from theory to research question ensures that abstract ideas are examined in a concrete and testable way.

Fill in the blank: A research question is a specific inquiry that guides investigation and is derived from _____.



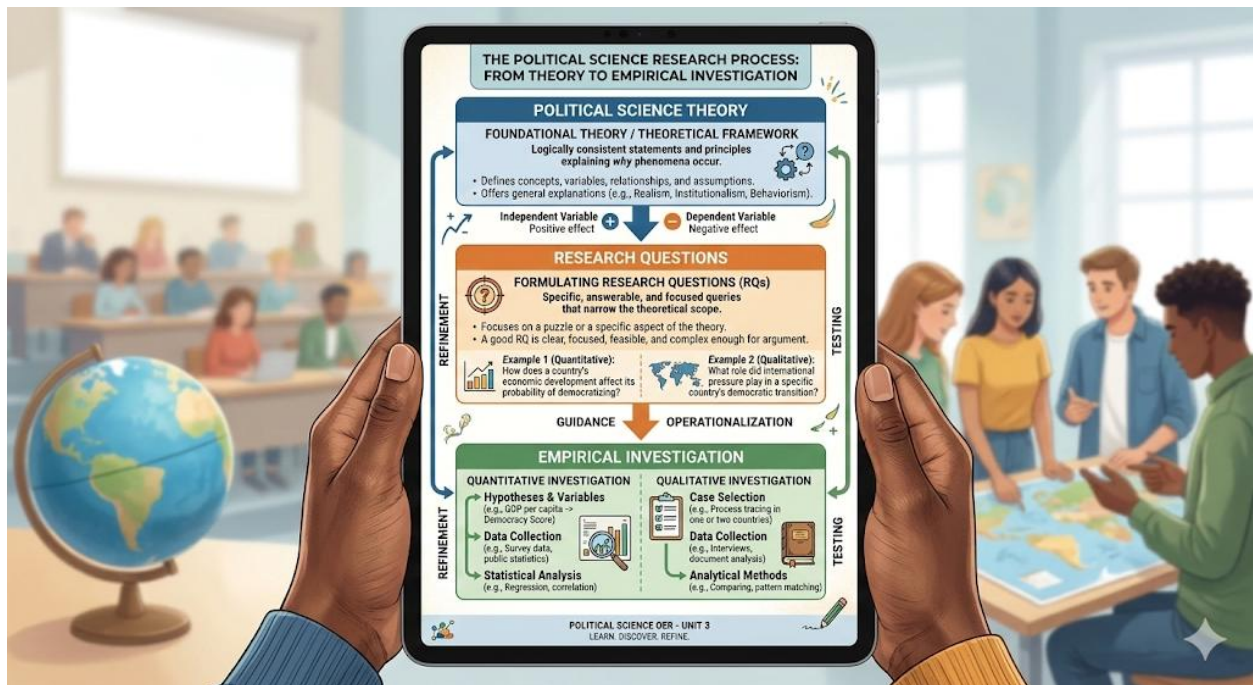


Diagram showing the link between theory, research questions, and empirical investigation.
Caption: Figure 1.3 From Theory to Research Questions

1.4.2 Integrating variables and hypotheses

A **variable** is any characteristic or factor that can change or vary in a study. In Political Science, variables may include age, income, party affiliation, or voter turnout. Variables are classified as **independent variables**, which influence outcomes, and **dependent variables**, which represent the outcomes being measured.

A **hypothesis** is a tentative statement predicting the relationship between variables. For instance, “Higher income levels increase the likelihood of voting” is a hypothesis that links income (independent variable) with voter turnout (dependent variable). Hypotheses provide direction for data collection and analysis, ensuring that research remains focused and systematic.

Fill in the blank: A tentative statement predicting the relationship between variables is called a



VARIABLES AND HYPOTHESES IN POLITICAL SCIENCE: A GUIDE				
EXAMPLES OF KEY RESEARCH COMPONENTS				
RESEARCH TOPIC		INDEPENDENT VARIABLE (IV) (The Cause)	DEPENDENT VARIABLE (DV) (The Effect)	HYPOTHESIS (A Testable Prediction)
Voting Behavior		Campaign Spending (by candidate)	→ Voter Turnout Rate	→ Candidates who spend more on campaign advertising will see a higher voter turnout in their district. 
Democratization		Level of Economic Development (GDP per capita)	→ Level of Democracy (score on index)	→ Countries with higher levels of economic development are more likely to transition to and maintain democratic systems. 
International Relations		Type of Political Regime (Democracy vs. Autocracy)	→ Frequency of War (with other states)	→ Democratic states are less likely to go to war with other democratic states than with autocratic states. 
Public Opinion		Media Exposure (time per day on news)	→ Political Polarization (score on scale)	→ Increased exposure to partisan news media leads to higher levels of political polarization among citizens. 
IV = Cause/Predictor DV = Effect/Outcome				
OER Political Science - Unit 1: Variables & Hypotheses				

Table 1.2 Examples of Variables and Hypotheses

Pilot questions 1.4

What is the role of theory in Political Science research?

Provide an example of how a theory can be transformed into a research question.

Define an independent variable and give one example.

What is a dependent variable in Political Science research?

State one hypothesis that links socio-economic status with voter behaviour.

Series summary

This Series has introduced you to the foundations of Political Science and the role of the scientific method in its study. We began by defining Political Science as a discipline, exploring its scope and the nature of political inquiry. We then examined the principles and steps of the scientific method, before applying them to political studies and considering their relevance and limitations. Finally, we linked theory to research practice, showing how research questions, variables, and hypotheses are developed to guide systematic investigation.

By working through these Parts, you should now be able to define Political Science and explain its disciplinary foundations (SLO 1.1), analyse the nature of politics and political inquiry (SLO 1.2), explain the principles and steps of the scientific method (SLO 1.3), apply the scientific method to political phenomena (SLO 1.4), evaluate its limitations and critiques (SLO 1.5), and demonstrate how theory connects to research practice through questions, variables, and



hypotheses (SLO 1.6). This summary reinforces the skills and knowledge you have gained, preparing you to move confidently into the next Series.

Glossary of terms

Data analysis: The process of examining collected information to test hypotheses and draw conclusions in research.

Data collection: The systematic gathering of information through methods such as surveys, interviews, or documents to support research.

Dependent variable: The outcome or effect being measured in a study, which is influenced by changes in the independent variable.

Hypothesis: A tentative statement predicting the relationship between variables, guiding data collection and analysis.

Independent variable: A factor that influences or causes changes in another variable within a study.

Objectivity: The principle of minimising bias in research to ensure findings are credible and reliable.

Political inquiry: The structured process of asking questions about political phenomena, which may be normative (value-based) or empirical (fact-based).

Political Science: The systematic study of politics, government, and power relations, using structured methods to generate reliable knowledge.

Politics: The processes through which power and resources are distributed within a society, involving negotiation, conflict, and cooperation.

Replicability: The ability to repeat a study under similar conditions and obtain consistent results, ensuring reliability of findings.

Research question: A specific inquiry derived from theory that guides investigation in a focused and testable way.

Scientific method: A structured sequence of steps, including observation, hypothesis development, data collection, analysis, and conclusion, used to investigate phenomena systematically.

Scientific study: The systematic investigation of phenomena using evidence, logic, and replicable methods to produce reliable knowledge.

Systematic observation: The organised collection of data in a structured manner to ensure accuracy and consistency in research.

Theory: A set of ideas or frameworks that explain political behaviour, institutions, or processes, forming the basis for research questions.



Concept check questions 1

Objective questions

Define Political Science as a discipline. (Linked to SLO 1.1)

Which principle of scientific study ensures that findings can be repeated under similar conditions? (Linked to SLO 1.3)

Identify the independent variable in the hypothesis: “Higher income levels increase the likelihood of voting.” (Linked to SLO 1.6)

What type of question in political inquiry is concerned with values and ideals? (Linked to SLO 1.2)

Which step of the scientific method involves proposing a tentative explanation? (Linked to SLO 1.3)

Short-answer questions

Explain why the scientific method is relevant to Political Science. (Linked to SLO 1.4)

State one limitation of applying the scientific method to politics. (Linked to SLO 1.5)

Provide an example of how a theory can be transformed into a research question. (Linked to SLO 1.6)

Distinguish between dependent and independent variables in Political Science research. (Linked to SLO 1.6)

Describe the role of systematic observation in scientific study. (Linked to SLO 1.3)

Long-answer questions

Analyse the importance of objectivity, systematic observation, and replicability in Political Science research. (Linked to SLO 1.3)

Evaluate the critiques of applying the scientific method to Political Science and suggest how researchers can address these limitations. (Linked to SLO 1.5)

Demonstrate how theory, research questions, variables, and hypotheses are linked together in Political Science research practice. (Linked to SLO 1.6)

Answers to concept check questions [Series 1]

Objective questions

Political Science is the systematic study of politics, government, and power relations.

Replicability.

Income level.

Normative questions.

Hypothesis development.



Short-answer questions

The scientific method is relevant because it provides structured, evidence-based approaches to studying complex political phenomena, ensuring credibility and reliability.

One limitation is that politics involves values and unpredictable events that are difficult to measure scientifically.

A theory about socio-economic status influencing voter behaviour can be transformed into the research question: “How does income level affect voter turnout?”

Independent variables influence outcomes, while dependent variables represent the outcomes being measured.

Systematic observation involves collecting data in an organised manner to ensure accuracy and consistency.

Long-answer questions

Basic response: Objectivity minimises bias, systematic observation ensures organised data collection, and replicability allows findings to be tested again. Together, these principles make Political Science research credible. *Value-added response:* Beyond credibility, these principles also allow Political Science to contribute to comparative studies across societies, strengthen policy-making, and build cumulative knowledge by enabling researchers to build on one another’s work.

Basic response: Critiques include difficulties in measuring values, the presence of normative questions, and the unpredictability of political events. Researchers can address these by acknowledging limitations and combining scientific rigour with contextual sensitivity. *Value-added response:* Outstanding learners may note that mixed-method approaches, combining qualitative and quantitative techniques, can help overcome these critiques. They may also suggest reflexivity, where researchers critically examine their own biases and assumptions.

Basic response: Theory provides broad ideas, which are narrowed into research questions. Variables are identified to measure aspects of the question, and hypotheses predict relationships between them. *Value-added response:* Learners may add that this linkage ensures Political Science remains systematic, allowing abstract theories to be tested empirically. They may also highlight how this process supports policy analysis and comparative studies across different political systems.

Answers to Pilot Questions [Series 1]

Part 1: Foundations of Political Science as a Discipline

Plato and Aristotle.

Political theory, comparative politics, international relations, public administration, and policy analysis.

Politics is defined as power relations.



Normative questions are concerned with values and ideals, while empirical questions are concerned with observable facts.

The scope includes political theory, comparative politics, international relations, public administration, and policy analysis.

Part 2: The Scientific Method in Political Research

Objectivity, systematic observation, and replicability.

Objectivity means minimising bias in research to ensure credibility.

Observation, research question, hypothesis, data collection, data analysis, and conclusion.

Data collection.

Replicability ensures findings can be tested again under similar conditions.

Part 3: Application of Scientific Method to Political Science

It provides structured, evidence-based approaches to studying complex political phenomena.

By formulating hypotheses about voter behaviour, collecting survey data, and analysing patterns.

Empirical evidence.

Political phenomena are influenced by unpredictable events.

Because it involves normative questions and values that go beyond empirical observation.

Part 4: Linking Scientific Method to Research Practice

Theory provides the foundation for research by offering concepts and propositions that can be tested.

A theory about socio-economic status influencing voter behaviour can be transformed into the research question: “How does income level affect voter turnout in national elections?”

An independent variable is a factor that influences outcomes, such as income level.

A dependent variable is the outcome being measured, such as voter turnout.

“Higher income levels increase the likelihood of voting.”

References and Attributions [Series 1]

Figures

Figure 1.1 Branches of Political Science: AI-generated diagram prompt suggestion: “Generate a labelled diagram showing the five main branches of Political Science: political theory, comparative politics, international relations, public administration, and policy analysis.” Suggested OER search string: “diagram branches of political science OER”.



Figure 1.2 Principles of Scientific Study: AI-generated diagram prompt suggestion: “Generate a labelled diagram illustrating the three principles of scientific study: objectivity, systematic observation, and replicability.” Suggested OER search string: “principles of scientific study political science OER”.

Figure 1.3 From Theory to Research Questions: AI-generated diagram prompt suggestion: “Generate a flow diagram showing how theory leads to research questions, which then guide empirical investigation.” Suggested OER search string: “political science theory to research question diagram OER”.

Plates

Plate 1.1 Application of Scientific Method in Political Studies: AI-generated image prompt suggestion: “Generate an image of a political scientist conducting a survey among citizens to study voter behaviour.” Suggested OER search string: “political science survey research OER image”.

Tables

Table 1.1 Steps in the Scientific Method: AI-generated table prompt suggestion: “Create a simple table listing the steps of the scientific method with short descriptions.” Suggested OER search string: “scientific method steps political science OER”.

Table 1.2 Examples of Variables and Hypotheses: AI-generated table prompt suggestion: “Create a simple table showing examples of independent variables, dependent variables, and hypotheses in Political Science.” Suggested OER search string: “variables and hypotheses political science OER”.

Boxes

Box 1.1 Key features of political inquiry: AI-generated text box prompt suggestion: “Create a text box summarising normative vs empirical questions in political inquiry.” Suggested OER search string: “normative vs empirical political science OER”.

Box 1.2 Critiques of the scientific method in Political Science: AI-generated text box prompt suggestion: “Create a text box summarising critiques of the scientific method in Political Science.” Suggested OER search string: “limitations of scientific method in political science OER”.

General references

Course content adapted from *POL 302: Logic and Methods of Political Science Research* (Learning Outcomes and Course Contents).

Illustrations are either AI-generated using suggested prompts or sourced through Open Educational Resources (OER) using the provided search strings.



- **Course code: POL 302**
- **Course title: Logic and Methods of Political Science Research**
- **Course credit load: 2**

SERIES 1: Political Science and the Scientific Method

Series outline

Part 1: Foundations of Political Science as a Discipline

- 1.1 Defining Political Science
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- 1.2.2 Steps in the Scientific Method

Part 3: Application of Scientific Method to Political Science

- 1.3.1 Relevance of Scientific Method to Political Studies
- 1.3.2 Limitations and Critiques of Scientific Approaches

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Introduction

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relevance as well as its limitations. Finally, we will wrap up by linking the scientific method to research practice, showing how theory connects to research questions, variables, and hypotheses. This sequential flow will provide you with both conceptual grounding and practical orientation for the rest of the course.

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- SLO 1.1** define Political Science and explain its disciplinary foundations,
- SLO 1.2** analyse the nature of politics and the role of political inquiry,
- SLO 1.3** explain the principles of the scientific method and outline its sequential steps,
- SLO 1.4** apply the scientific method to the study of political phenomena,
- SLO 1.5** evaluate the limitations and critiques of scientific approaches in Political Science, and
- SLO 1.6** demonstrate how to link theory to research practice by formulating research questions, identifying variables, and developing hypotheses.

1.1 Foundations Of Political Science As A Discipline

1.1.1 Defining political science

Political Science is the systematic study of politics, government, and power relations. It examines how societies organise authority, how decisions are made, and how policies affect citizens and institutions. Unlike casual discussion about politics, Political Science relies on structured methods to generate knowledge that is reliable and testable.

The discipline has its **historical roots** in philosophy, with thinkers such as Plato and Aristotle laying the groundwork for political inquiry. Over time, it evolved into a distinct field that combines theory with empirical research. The **scope of Political Science** includes areas such as political theory, comparative politics, international relations, public administration, and policy analysis.

Fill in the blank: Political Science is the systematic study of _____, government, and power relations.



THE FIVE MAIN BRANCHES OF POLITICAL SCIENCE (OER)

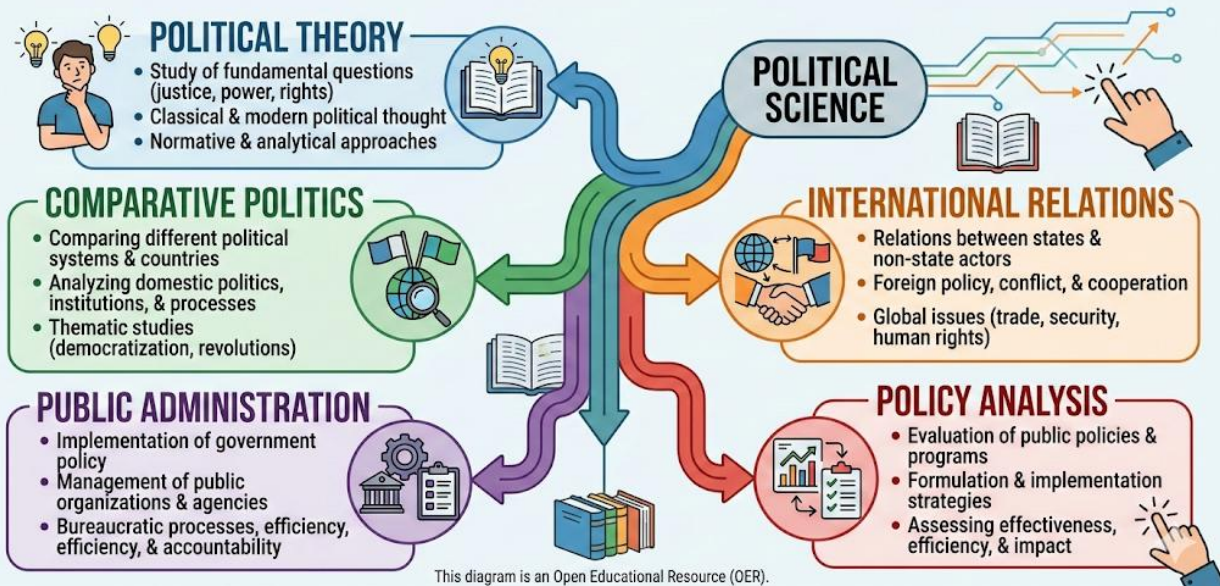


Diagram showing branches of Political Science (e.g., political theory, comparative politics, international relations, public administration, policy analysis). Caption: Figure 1.1 Branches of Political Science

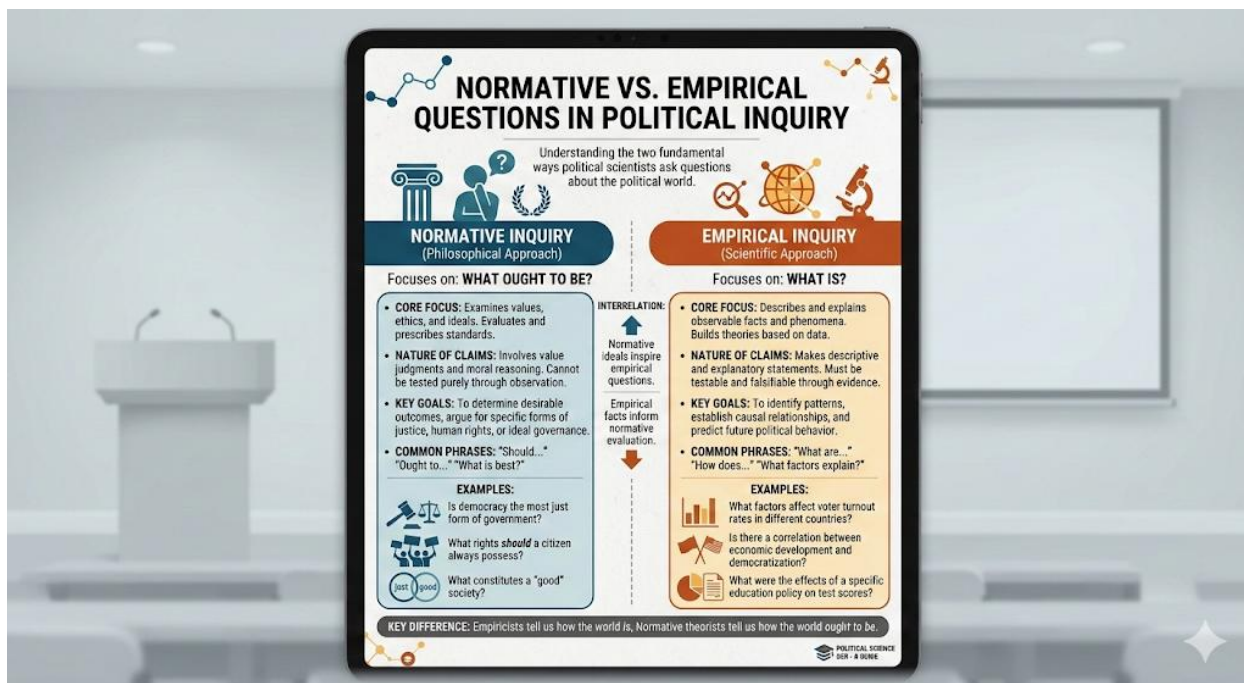
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Fill in the blank: Politics is essentially about _____ relations, meaning who gets what, when, and how.





Box 1.1 Key features of political inquiry

Pilot questions 1.1

Which ancient philosophers are considered foundational to Political Science?

What are the five main branches of Political Science?

Define politics in terms of power relations.

Distinguish between normative and empirical questions in political inquiry.

What is the scope of Political Science as a discipline?

1.2 The Scientific Method In Political Research

1.2.1 Principles of scientific study

Scientific study refers to the systematic process of investigating phenomena using structured methods that emphasise evidence, logic, and replicability. In Political Science, this means moving beyond personal opinions or ideological positions to adopt approaches that can be tested and verified. The aim is to produce knowledge that is both reliable and valid.

The principles of scientific study include **objectivity**, which means minimising bias in research; **systematic observation**, which involves collecting data in an organised manner; and **replicability**, which ensures that findings can be tested again under similar conditions. These principles help Political Science maintain its credibility as a discipline.

Fill in the blank: One of the key principles of scientific study is _____, which ensures that findings can be tested again under similar conditions.



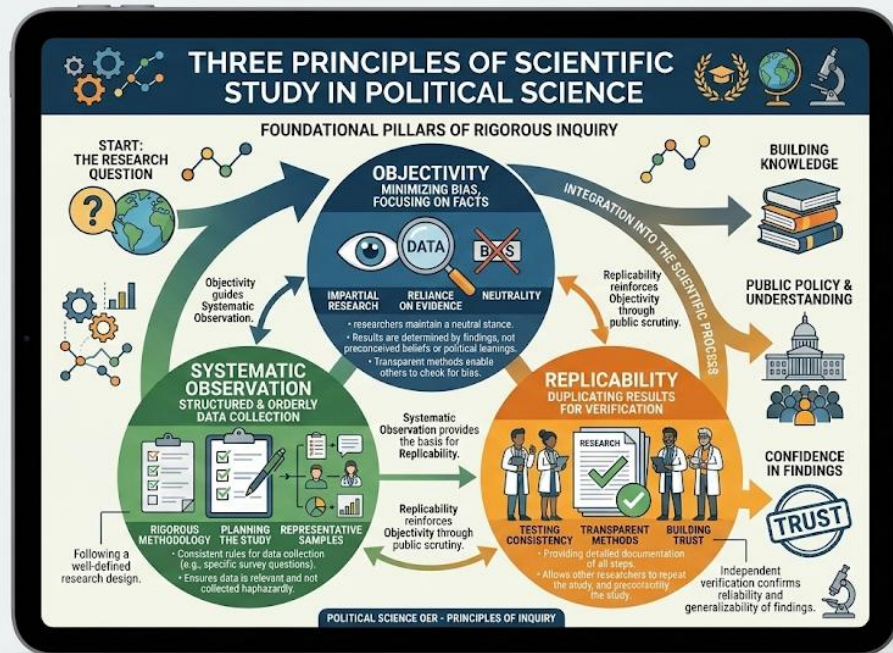


Diagram showing principles of scientific study (objectivity, systematic observation, replicability). Caption: Figure 1.2 Principles of Scientific Study

1.2.2 Steps in the scientific method

The **scientific method** is a structured sequence of steps used to investigate questions and generate knowledge. In Political Science, these steps guide researchers in framing problems, collecting evidence, and drawing conclusions.

The steps typically include:

Observation: Identifying a political phenomenon or issue that requires explanation.

Formulation of a research question: Narrowing the focus to a specific, testable inquiry.

Hypothesis development: Proposing a tentative explanation or prediction.

Data collection: Gathering relevant information through surveys, interviews, documents, or statistical records.

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Conclusion: Drawing inferences and relating findings back to the original question.

Fill in the blank: In the scientific method, the step that involves proposing a tentative explanation or prediction is called _____ development.



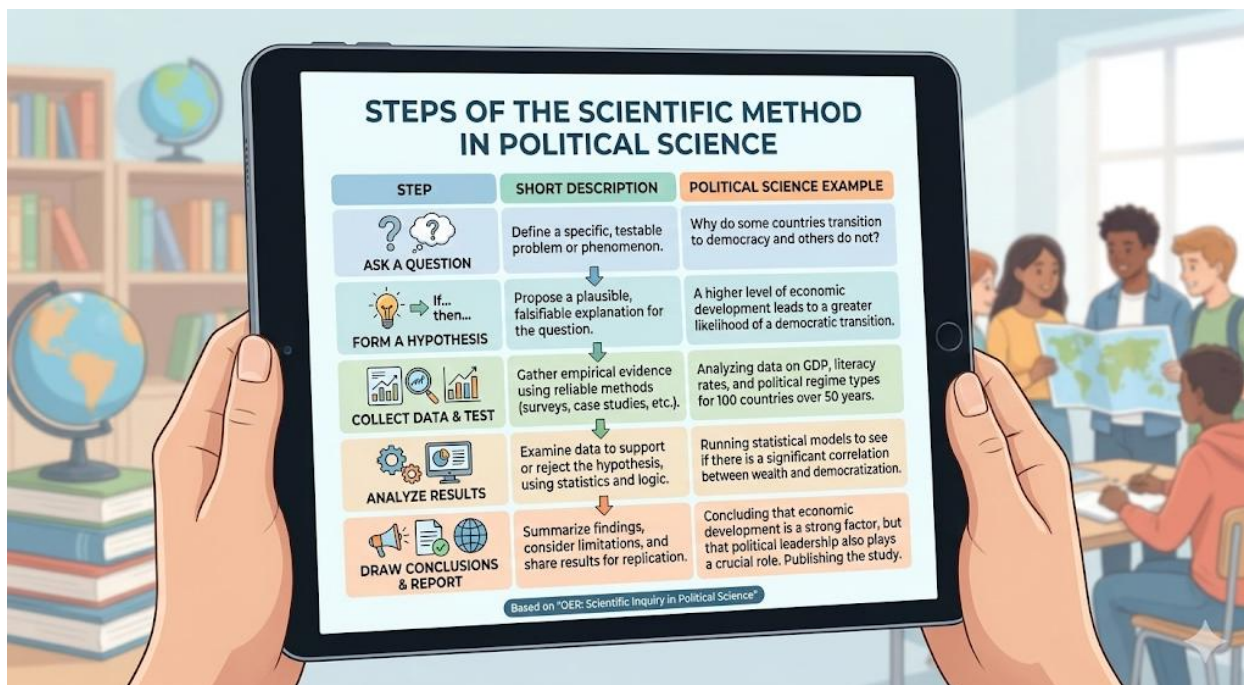


Table 1.1 Steps in the Scientific Method

Pilot questions 1.2

What are the three main principles of scientific study?

Define objectivity in the context of Political Science research.

List the sequential steps of the scientific method.

Which step of the scientific method involves gathering information through surveys or interviews?

Why is replicability important in Political Science research?

1.3 Application Of Scientific Method To Political Science

1.3.1 Relevance of scientific method to political studies

The **scientific method** is highly relevant to Political Science because it provides a structured way of investigating complex political phenomena. Politics often involves competing interests, diverse perspectives, and dynamic processes. By applying the scientific method, researchers can move beyond speculation and ideology to produce evidence-based explanations. This strengthens the credibility of Political Science as a discipline and allows its findings to inform policy-making, governance, and public debate.

For example, when studying voter behaviour, researchers can formulate hypotheses about why people vote in certain ways, collect survey data, and analyse patterns to test those hypotheses. This process ensures that conclusions are not merely based on assumptions but are supported by empirical evidence.



Fill in the blank: The scientific method strengthens the credibility of Political Science by ensuring that findings are based on _____ evidence.



Image showing a researcher conducting a political survey with citizens. Caption: Plate 1.1
Application of Scientific Method in Political Studies

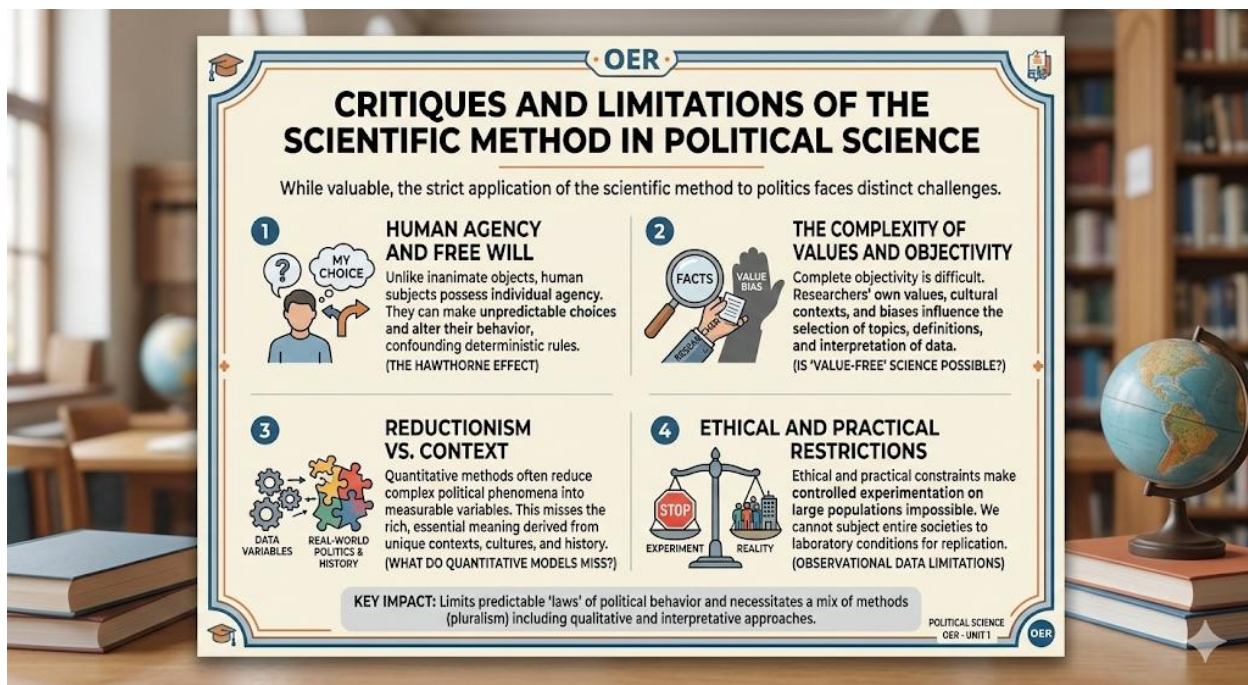
1.3.2 Limitations and critiques of scientific approaches

While the scientific method is valuable, it is not without limitations. Politics deals with human behaviour, values, and cultural contexts, which are often difficult to measure with precision. Some critics argue that Political Science cannot be fully scientific because it involves normative questions about justice, fairness, and morality that go beyond empirical observation.

Another limitation is that political phenomena are influenced by unpredictable events, such as revolutions, crises, or sudden policy changes. These factors make it challenging to apply rigid scientific models. Nevertheless, acknowledging these critiques helps researchers remain cautious and reflective in their work, balancing scientific rigour with sensitivity to context.

Fill in the blank: One limitation of applying the scientific method to politics is that political phenomena are influenced by unpredictable _____.





Box 1.2 Critiques of the scientific method in Political Science

Pilot questions 1.3

Why is the scientific method relevant to Political Science?

Give an example of how the scientific method can be applied to studying voter behaviour.

What type of evidence strengthens the credibility of Political Science research?

Identify one limitation of applying the scientific method to politics.

Why do critics argue that Political Science cannot be fully scientific?

1.4 Linking Scientific Method To Research Practice

1.4.1 From theory to research questions

Theory in Political Science refers to a set of ideas or frameworks that explain political behaviour, institutions, or processes. Theories provide the foundation for research by offering concepts and propositions that can be tested. To make theory useful in practice, researchers must translate broad ideas into **research questions**, which are specific inquiries that guide investigation.

For example, a theory about voter behaviour might suggest that socio-economic status influences voting patterns. A corresponding research question could be: "How does income level affect voter turnout in national elections?" This transformation from theory to research question ensures that abstract ideas are examined in a concrete and testable way.

Fill in the blank: A research question is a specific inquiry that guides investigation and is derived from _____.



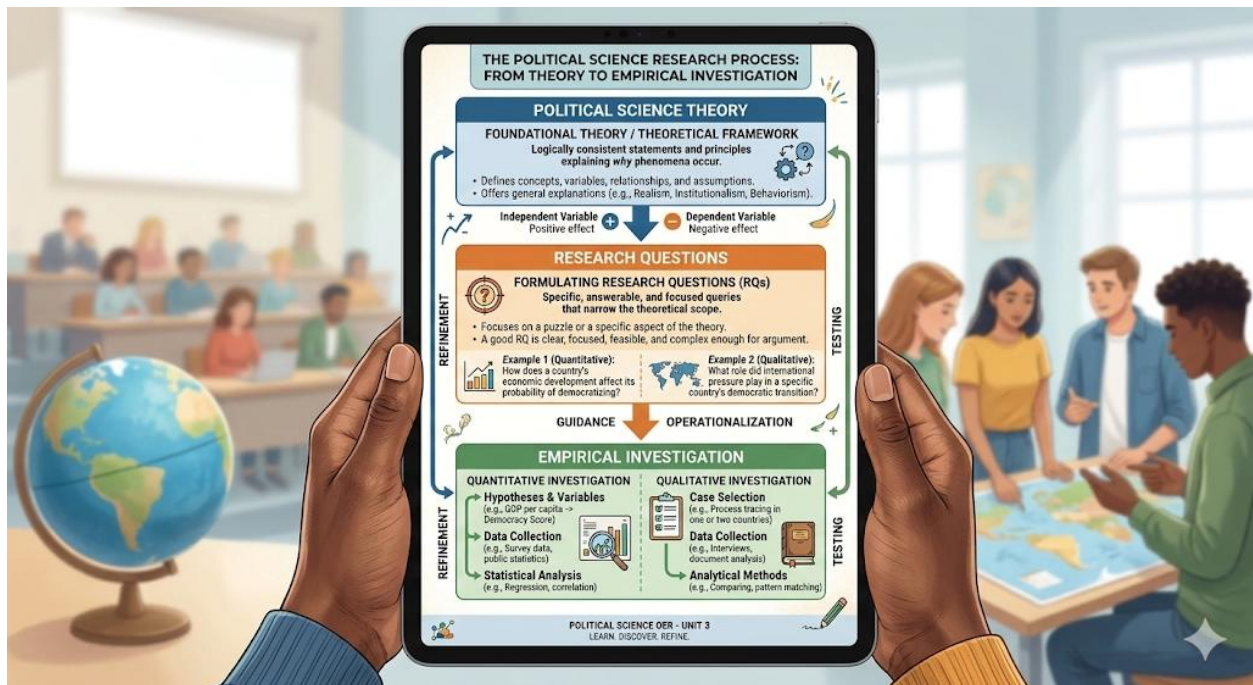


Diagram showing the link between theory, research questions, and empirical investigation.
Caption: Figure 1.3 From Theory to Research Questions

1.4.2 Integrating variables and hypotheses

A **variable** is any characteristic or factor that can change or vary in a study. In Political Science, variables may include age, income, party affiliation, or voter turnout. Variables are classified as **independent variables**, which influence outcomes, and **dependent variables**, which represent the outcomes being measured.

A **hypothesis** is a tentative statement predicting the relationship between variables. For instance, “Higher income levels increase the likelihood of voting” is a hypothesis that links income (independent variable) with voter turnout (dependent variable). Hypotheses provide direction for data collection and analysis, ensuring that research remains focused and systematic.

Fill in the blank: A tentative statement predicting the relationship between variables is called a



VARIABLES AND HYPOTHESES IN POLITICAL SCIENCE: A GUIDE				
EXAMPLES OF KEY RESEARCH COMPONENTS				
RESEARCH TOPIC		INDEPENDENT VARIABLE (IV) (The Cause)	DEPENDENT VARIABLE (DV) (The Effect)	HYPOTHESIS (A Testable Prediction)
Voting Behavior		Campaign Spending (by candidate)	→ Voter Turnout Rate	→ Candidates who spend more on campaign advertising will see a higher voter turnout in their district. 
Democratization		Level of Economic Development (GDP per capita)	→ Level of Democracy (score on index)	→ Countries with higher levels of economic development are more likely to transition to and maintain democratic systems. 
International Relations		Type of Political Regime (Democracy vs. Autocracy)	→ Frequency of War (with other states)	→ Democratic states are less likely to go to war with other democratic states than with autocratic states. 
Public Opinion		Media Exposure (time per day on news)	→ Political Polarization (score on scale)	→ Increased exposure to partisan news media leads to higher levels of political polarization among citizens. 

IV = Cause/Predictor DV = Effect/Outcome
OER Political Science - Unit 1: Variables & Hypotheses

Table 1.2 Examples of Variables and Hypotheses

Pilot questions 1.4

What is the role of theory in Political Science research?

Provide an example of how a theory can be transformed into a research question.

Define an independent variable and give one example.

What is a dependent variable in Political Science research?

State one hypothesis that links socio-economic status with voter behaviour.

Series summary

This Series has introduced you to the foundations of Political Science and the role of the scientific method in its study. We began by defining Political Science as a discipline, exploring its scope and the nature of political inquiry. We then examined the principles and steps of the scientific method, before applying them to political studies and considering their relevance and limitations. Finally, we linked theory to research practice, showing how research questions, variables, and hypotheses are developed to guide systematic investigation.

By working through these Parts, you should now be able to define Political Science and explain its disciplinary foundations (SLO 1.1), analyse the nature of politics and political inquiry (SLO 1.2), explain the principles and steps of the scientific method (SLO 1.3), apply the scientific method to political phenomena (SLO 1.4), evaluate its limitations and critiques (SLO 1.5), and demonstrate how theory connects to research practice through questions, variables, and



hypotheses (SLO 1.6). This summary reinforces the skills and knowledge you have gained, preparing you to move confidently into the next Series.

Glossary of terms

Data analysis: The process of examining collected information to test hypotheses and draw conclusions in research.

Data collection: The systematic gathering of information through methods such as surveys, interviews, or documents to support research.

Dependent variable: The outcome or effect being measured in a study, which is influenced by changes in the independent variable.

Hypothesis: A tentative statement predicting the relationship between variables, guiding data collection and analysis.

Independent variable: A factor that influences or causes changes in another variable within a study.

Objectivity: The principle of minimising bias in research to ensure findings are credible and reliable.

Political inquiry: The structured process of asking questions about political phenomena, which may be normative (value-based) or empirical (fact-based).

Political Science: The systematic study of politics, government, and power relations, using structured methods to generate reliable knowledge.

Politics: The processes through which power and resources are distributed within a society, involving negotiation, conflict, and cooperation.

Replicability: The ability to repeat a study under similar conditions and obtain consistent results, ensuring reliability of findings.

Research question: A specific inquiry derived from theory that guides investigation in a focused and testable way.

Scientific method: A structured sequence of steps, including observation, hypothesis development, data collection, analysis, and conclusion, used to investigate phenomena systematically.

Scientific study: The systematic investigation of phenomena using evidence, logic, and replicable methods to produce reliable knowledge.

Systematic observation: The organised collection of data in a structured manner to ensure accuracy and consistency in research.

Theory: A set of ideas or frameworks that explain political behaviour, institutions, or processes, forming the basis for research questions.



Concept check questions 1

Objective questions

Define Political Science as a discipline. (Linked to SLO 1.1)

Which principle of scientific study ensures that findings can be repeated under similar conditions? (Linked to SLO 1.3)

Identify the independent variable in the hypothesis: “Higher income levels increase the likelihood of voting.” (Linked to SLO 1.6)

What type of question in political inquiry is concerned with values and ideals? (Linked to SLO 1.2)

Which step of the scientific method involves proposing a tentative explanation? (Linked to SLO 1.3)

Short-answer questions

Explain why the scientific method is relevant to Political Science. (Linked to SLO 1.4)

State one limitation of applying the scientific method to politics. (Linked to SLO 1.5)

Provide an example of how a theory can be transformed into a research question. (Linked to SLO 1.6)

Distinguish between dependent and independent variables in Political Science research. (Linked to SLO 1.6)

Describe the role of systematic observation in scientific study. (Linked to SLO 1.3)

Long-answer questions

Analyse the importance of objectivity, systematic observation, and replicability in Political Science research. (Linked to SLO 1.3)

Evaluate the critiques of applying the scientific method to Political Science and suggest how researchers can address these limitations. (Linked to SLO 1.5)

Demonstrate how theory, research questions, variables, and hypotheses are linked together in Political Science research practice. (Linked to SLO 1.6)

Answers to concept check questions [Series 1]

Objective questions

Political Science is the systematic study of politics, government, and power relations.

Replicability.

Income level.

Normative questions.

Hypothesis development.



Short-answer questions

The scientific method is relevant because it provides structured, evidence-based approaches to studying complex political phenomena, ensuring credibility and reliability.

One limitation is that politics involves values and unpredictable events that are difficult to measure scientifically.

A theory about socio-economic status influencing voter behaviour can be transformed into the research question: “How does income level affect voter turnout?”

Independent variables influence outcomes, while dependent variables represent the outcomes being measured.

Systematic observation involves collecting data in an organised manner to ensure accuracy and consistency.

Long-answer questions

Basic response: Objectivity minimises bias, systematic observation ensures organised data collection, and replicability allows findings to be tested again. Together, these principles make Political Science research credible. *Value-added response:* Beyond credibility, these principles also allow Political Science to contribute to comparative studies across societies, strengthen policy-making, and build cumulative knowledge by enabling researchers to build on one another’s work.

Basic response: Critiques include difficulties in measuring values, the presence of normative questions, and the unpredictability of political events. Researchers can address these by acknowledging limitations and combining scientific rigour with contextual sensitivity. *Value-added response:* Outstanding learners may note that mixed-method approaches, combining qualitative and quantitative techniques, can help overcome these critiques. They may also suggest reflexivity, where researchers critically examine their own biases and assumptions.

Basic response: Theory provides broad ideas, which are narrowed into research questions. Variables are identified to measure aspects of the question, and hypotheses predict relationships between them. *Value-added response:* Learners may add that this linkage ensures Political Science remains systematic, allowing abstract theories to be tested empirically. They may also highlight how this process supports policy analysis and comparative studies across different political systems.

Answers to Pilot Questions [Series 1]

Part 1: Foundations of Political Science as a Discipline

Plato and Aristotle.

Political theory, comparative politics, international relations, public administration, and policy analysis.

Politics is defined as power relations.



Normative questions are concerned with values and ideals, while empirical questions are concerned with observable facts.

The scope includes political theory, comparative politics, international relations, public administration, and policy analysis.

Part 2: The Scientific Method in Political Research

Objectivity, systematic observation, and replicability.

Objectivity means minimising bias in research to ensure credibility.

Observation, research question, hypothesis, data collection, data analysis, and conclusion.

Data collection.

Replicability ensures findings can be tested again under similar conditions.

Part 3: Application of Scientific Method to Political Science

It provides structured, evidence-based approaches to studying complex political phenomena.

By formulating hypotheses about voter behaviour, collecting survey data, and analysing patterns.

Empirical evidence.

Political phenomena are influenced by unpredictable events.

Because it involves normative questions and values that go beyond empirical observation.

Part 4: Linking Scientific Method to Research Practice

Theory provides the foundation for research by offering concepts and propositions that can be tested.

A theory about socio-economic status influencing voter behaviour can be transformed into the research question: “How does income level affect voter turnout in national elections?”

An independent variable is a factor that influences outcomes, such as income level.

A dependent variable is the outcome being measured, such as voter turnout.

“Higher income levels increase the likelihood of voting.”

References and Attributions [Series 1]

Figures

Figure 1.1 Branches of Political Science: AI-generated diagram prompt suggestion: “Generate a labelled diagram showing the five main branches of Political Science: political theory, comparative politics, international relations, public administration, and policy analysis.” Suggested OER search string: “diagram branches of political science OER”.



Figure 1.2 Principles of Scientific Study: AI-generated diagram prompt suggestion: “Generate a labelled diagram illustrating the three principles of scientific study: objectivity, systematic observation, and replicability.” Suggested OER search string: “principles of scientific study political science OER”.

Figure 1.3 From Theory to Research Questions: AI-generated diagram prompt suggestion: “Generate a flow diagram showing how theory leads to research questions, which then guide empirical investigation.” Suggested OER search string: “political science theory to research question diagram OER”.

Plates

Plate 1.1 Application of Scientific Method in Political Studies: AI-generated image prompt suggestion: “Generate an image of a political scientist conducting a survey among citizens to study voter behaviour.” Suggested OER search string: “political science survey research OER image”.

Tables

Table 1.1 Steps in the Scientific Method: AI-generated table prompt suggestion: “Create a simple table listing the steps of the scientific method with short descriptions.” Suggested OER search string: “scientific method steps political science OER”.

Table 1.2 Examples of Variables and Hypotheses: AI-generated table prompt suggestion: “Create a simple table showing examples of independent variables, dependent variables, and hypotheses in Political Science.” Suggested OER search string: “variables and hypotheses political science OER”.

Boxes

Box 1.1 Key features of political inquiry: AI-generated text box prompt suggestion: “Create a text box summarising normative vs empirical questions in political inquiry.” Suggested OER search string: “normative vs empirical political science OER”.

Box 1.2 Critiques of the scientific method in Political Science: AI-generated text box prompt suggestion: “Create a text box summarising critiques of the scientific method in Political Science.” Suggested OER search string: “limitations of scientific method in political science OER”.

General references

Course content adapted from *POL 302: Logic and Methods of Political Science Research* (Learning Outcomes and Course Contents).

Illustrations are either AI-generated using suggested prompts or sourced through Open Educational Resources (OER) using the provided search strings.



- **Course code: POL 302**
- **Course title: Logic and Methods of Political Science Research**
- **Course credit load: 2**

SERIES 3: Logic Of Political Inquiry And Variables

Series outline

Part 3.1 Foundations of political inquiry

- 3.1.1 Meaning and scope of political inquiry
- 3.1.2 Normative versus empirical inquiry

Part 3.2 Logic of scientific reasoning in Political Science

- 3.2.1 Deductive reasoning and its application
- 3.2.2 Inductive reasoning and its application
- 3.2.3 Linking theory and evidence

Part 3.3 Variables in Political Science research

- 3.3.1 Definition and types of variables
- 3.3.2 Independent and dependent variables
- 3.3.3 Control and intervening variables

Part 3.4 Operationalisation of variables

- 3.4.1 Measurement and indicators
- 3.4.2 Challenges in operationalising political concepts

Introduction

In the last Series, we examined the methods of conducting Political Science research, focusing on how to frame questions, design instruments, and analyse data. This Series takes us a step further by exploring the logic that underpins political inquiry and the role of variables in shaping research outcomes. Understanding the reasoning processes and the proper use of variables is crucial because they form the backbone of systematic investigation in Political Science.

The aim of this Series is to equip you with the ability to apply logical reasoning to political inquiry and to identify, classify, and operationalise variables effectively in research.

We shall commence this Series by considering the foundations of political inquiry, including its meaning, scope, and the distinction between normative and empirical approaches. Next, we will focus on the logic of scientific reasoning, examining deductive and inductive reasoning and how theory connects with evidence. Following that, we will move on to variables in Political Science



research, defining their types and exploring independent, dependent, control, and intervening variables. Finally, we will wrap up by discussing the operationalisation of variables, looking at measurement, indicators, and the challenges of applying these concepts to complex political phenomena.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- SLO 3.1** define the meaning and scope of political inquiry,
- SLO 3.2** distinguish between normative and empirical approaches to political inquiry,
- SLO 3.3** explain deductive reasoning and demonstrate its application in Political Science,
- SLO 3.4** explain inductive reasoning and demonstrate its application in Political Science,
- SLO 3.5** analyse how theory and evidence are linked in scientific reasoning,
- SLO 3.6** define variables and classify their types in Political Science research,
- SLO 3.7** differentiate between independent and dependent variables,
- SLO 3.8** identify and explain the role of control and intervening variables,
- SLO 3.9** apply the process of operationalising variables through measurement and indicators, and
- SLO 3.10** evaluate challenges in operationalising complex political concepts.

3.1 Foundations Of Political Inquiry

3.1.1 Meaning and scope of political inquiry

Political inquiry refers to the systematic investigation of political phenomena, including behaviour, institutions, and processes. It is concerned with asking questions about how power is distributed, how decisions are made, and how societies are governed. The scope of political inquiry is broad, ranging from the study of individual voter behaviour to the analysis of international relations.

Political inquiry is essential because it provides structured knowledge that helps scholars and policymakers understand and address political challenges. By applying logical reasoning and research methods, inquiry ensures that conclusions are credible and can be tested against evidence.

Fill in the blank: Political inquiry is the systematic investigation of _____ phenomena, including behaviour, institutions, and processes.



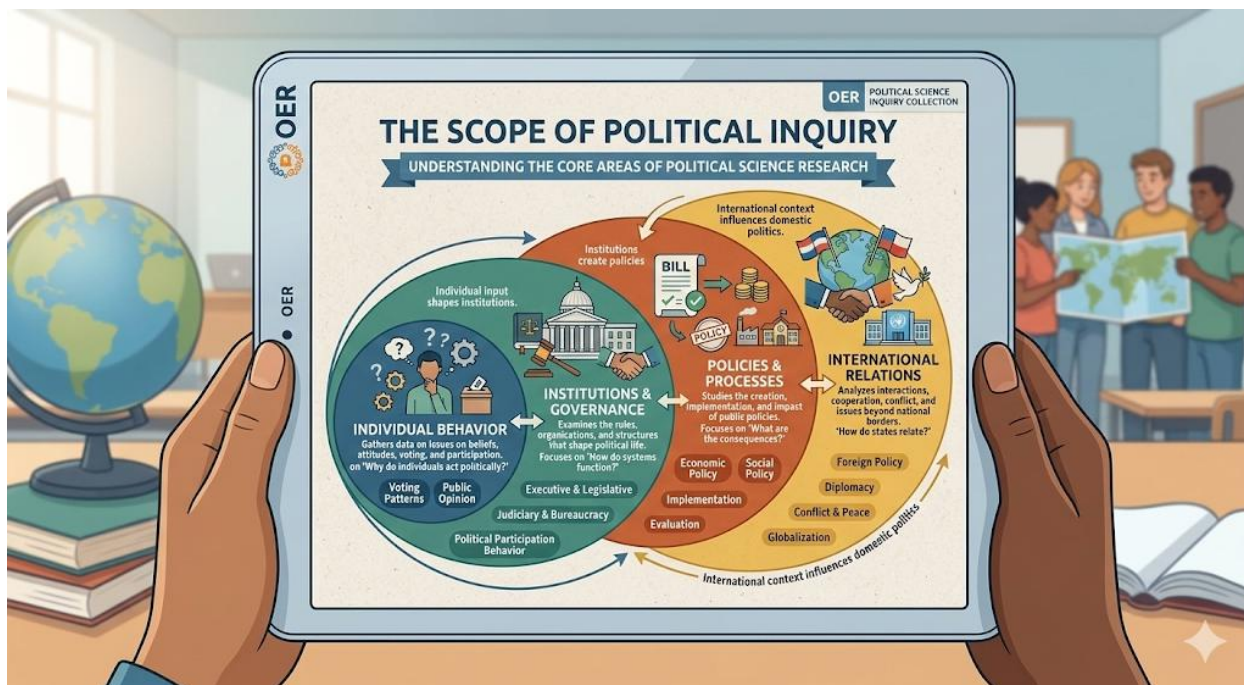


Diagram showing the scope of political inquiry (individual behaviour, institutions, policies, international relations). Caption: Figure 3.1 Scope of Political Inquiry

3.1.2 Normative versus empirical inquiry

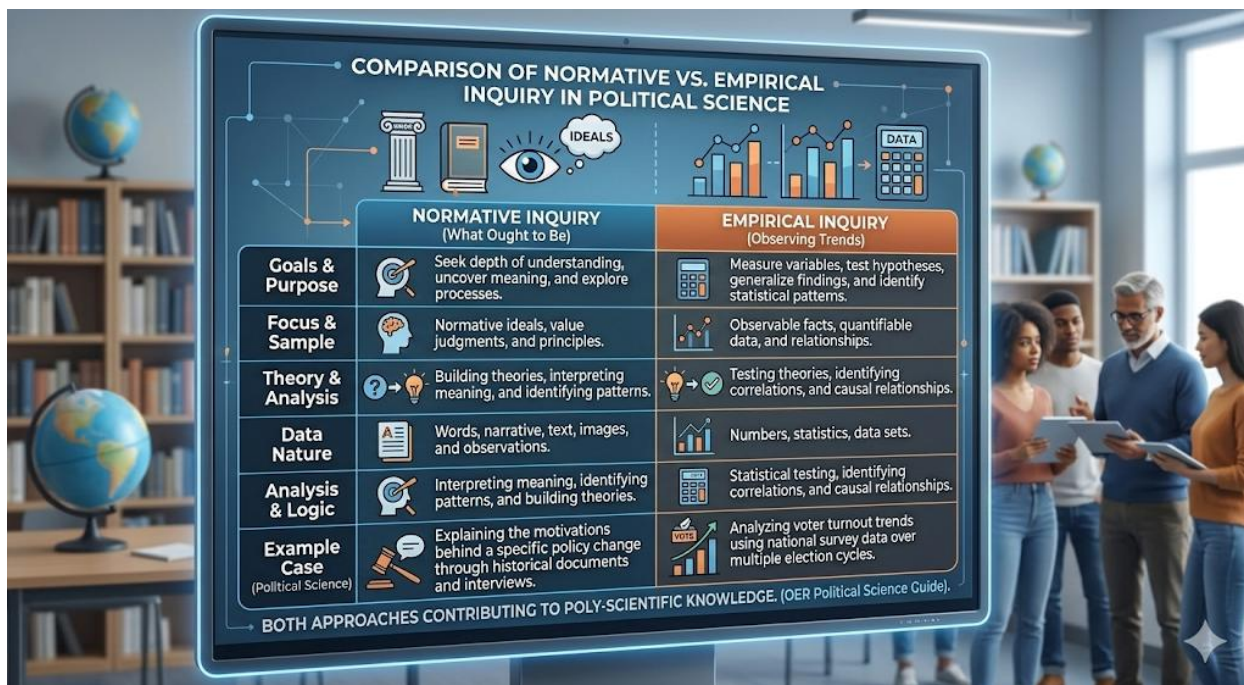
Normative inquiry focuses on values, ideals, and what ought to be. It asks questions such as “What is the best form of government?” or “Should citizens have a duty to vote?” Normative inquiry is important because it addresses ethical and philosophical dimensions of politics.

Empirical inquiry, on the other hand, deals with observable facts and evidence. It asks questions such as “What percentage of citizens voted in the last election?” or “How does income level affect political participation?” Empirical inquiry is crucial because it allows researchers to test hypotheses and build knowledge based on data.

Both approaches are complementary. Normative inquiry provides guidance on values, while empirical inquiry offers evidence to support or challenge those values.

Fill in the blank: Normative inquiry asks what ought to be, while _____ inquiry focuses on observable facts and evidence.





	NORMATIVE INQUIRY (What Ought to Be)	EMPIRICAL INQUIRY (Observing Trends)
Goals & Purpose	Seek depth of understanding, uncover meaning, and explore processes.	Measure variables, test hypotheses, generalize findings, and identify statistical patterns.
Focus & Sample	Normative ideals, value judgments, and principles.	Observable facts, quantifiable data, and relationships.
Theory & Analysis	Building theories, interpreting meaning, and identifying patterns.	Testing theories, identifying correlations, and causal relationships.
Data Nature	Words, narrative, text, images, and observations.	Numbers, statistics, data sets.
Analysis & Logic	Interpreting meaning, identifying patterns, and building theories.	Statistical testing, identifying correlations, and causal relationships.
Example Case (Political Science)	Explaining the motivations behind a specific policy change through historical documents and interviews.	Analyzing voter turnout trends using national survey data over multiple election cycles.

BOTH APPROACHES CONTRIBUTING TO POLY-SCIENTIFIC KNOWLEDGE. (OER Political Science Guide).

Table 3.1 Comparison of Normative and Empirical Inquiry

Pilot questions 3.1

Define political inquiry.

State two areas covered under the scope of political inquiry.

What is the focus of normative inquiry?

Give one example of a question asked in empirical inquiry.

Why are normative and empirical inquiries considered complementary?

3.2 Logic Of Scientific Reasoning In Political Science

3.2.1 Deductive reasoning and its application

Deductive reasoning is a logical process that begins with general principles or theories and applies them to specific cases. In Political Science, deductive reasoning allows researchers to test whether established theories hold true in particular contexts. For example, if a theory states that democracies are more stable than authoritarian regimes, deductive reasoning would lead us to examine specific countries to see if this principle applies.

Deductive reasoning is powerful because it provides clarity and consistency. However, it requires strong theoretical foundations, and if the theory is flawed, the conclusions may also be flawed.

Fill in the blank: Deductive reasoning begins with general principles and applies them to _____ cases.



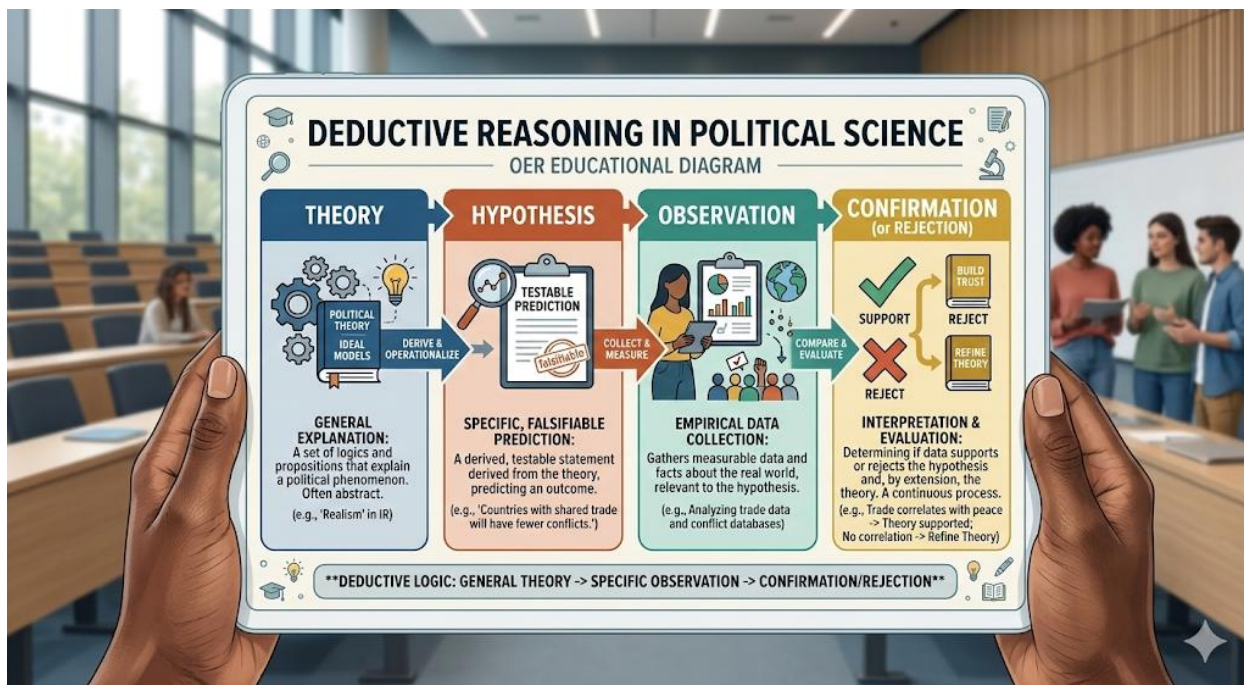


Diagram showing deductive reasoning flow: Theory → Hypothesis → Observation → Confirmation. Caption: Figure 3.2 Deductive Reasoning in Political Science

3.2.2 Inductive reasoning and its application

Inductive reasoning is a logical process that begins with specific observations and builds towards general principles or theories. In Political Science, inductive reasoning is often used when researchers collect data first and then develop theories based on patterns they observe. For example, by studying voting behaviour across several elections, researchers may develop a theory about the influence of social media on political participation.

Inductive reasoning is valuable because it allows new theories to emerge from evidence. However, it can be limited if the observations are too narrow or not representative.

Fill in the blank: Inductive reasoning begins with specific observations and builds towards _____ principles or theories.



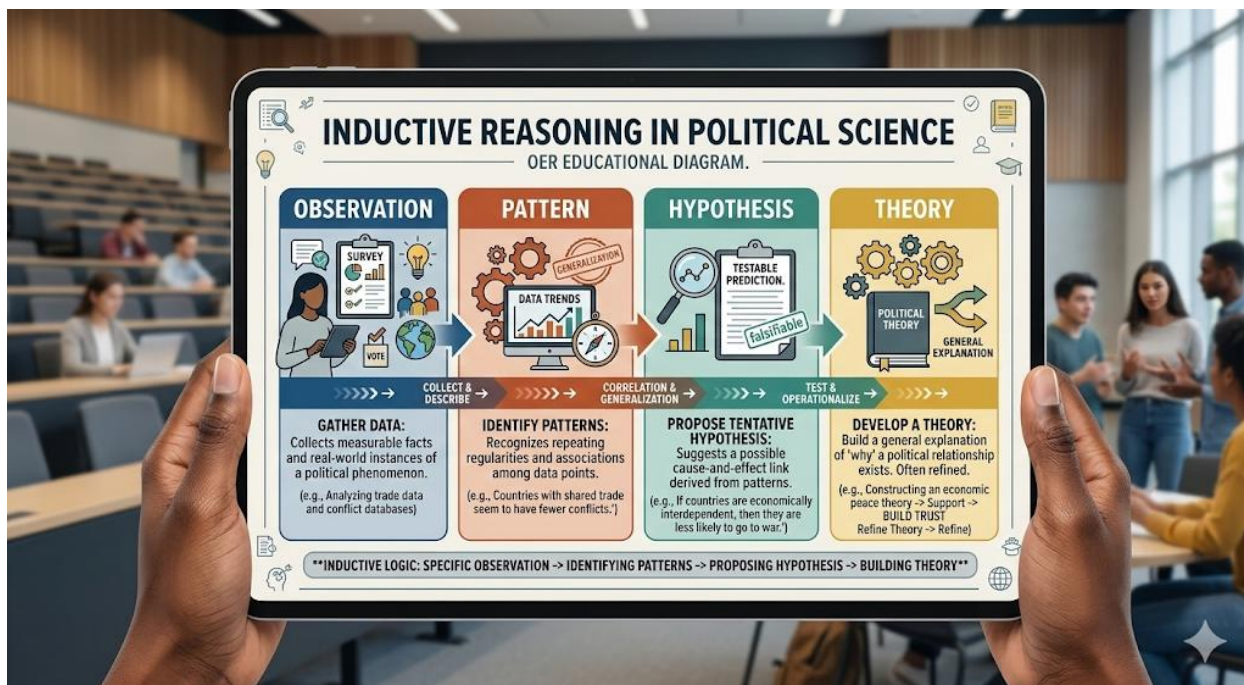


Diagram showing inductive reasoning flow: Observation → Pattern → Hypothesis → Theory.
Caption: Figure 3.3 Inductive Reasoning in Political Science

3.2.3 Linking theory and evidence

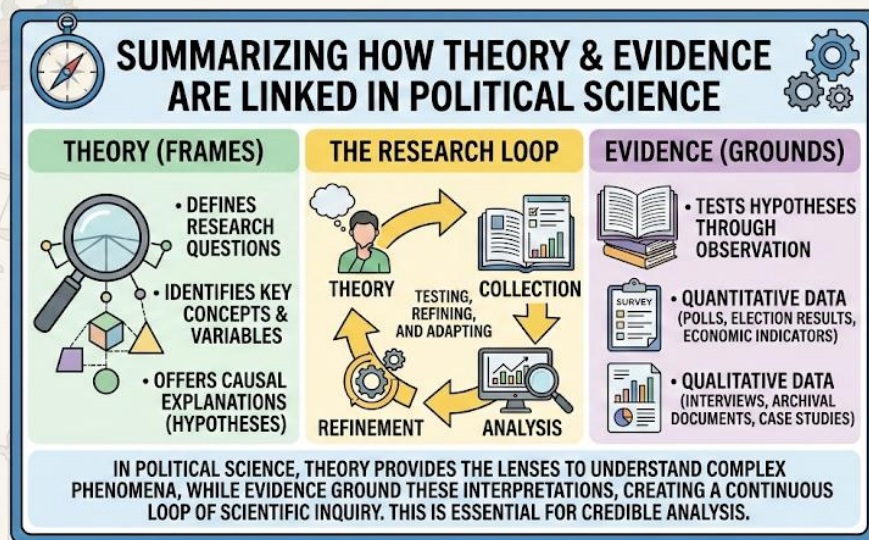
In Political Science, the strength of research lies in how well **theory** and **evidence** are connected. A **theory** is a set of ideas that explains political phenomena, while **evidence** refers to the data collected through research. Deductive reasoning tests theories against evidence, while inductive reasoning builds theories from evidence.

This link ensures that Political Science remains both systematic and practical. Without theory, evidence may lack meaning, and without evidence, theory remains speculative. Together, they form the foundation of credible political inquiry.

Fill in the blank: Without evidence, theory remains speculative, and without theory, _____ may lack meaning.



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Box 3.1 Linking Theory and Evidence in Political Science

Pilot questions 3.2

Define deductive reasoning in Political Science.

Give one example of how deductive reasoning can be applied.

Define inductive reasoning in Political Science.

Provide one example of how inductive reasoning can be applied.

Why is linking theory and evidence important in Political Science research?

3.3 Variables In Political Science Research

3.3.1 Definition and types of variables

A **variable** is any characteristic or attribute that can take on different values in research. In Political Science, variables are used to measure and analyse phenomena such as voter turnout, political trust, or party affiliation.

Variables can be classified into different types. **Qualitative variables** describe categories or qualities, such as political party membership or gender. **Quantitative variables** measure numerical values, such as age, income, or the percentage of voter turnout. These distinctions are important because they determine the methods of analysis that can be applied.

Fill in the blank: A variable is any characteristic or attribute that can take on different _____ in research.



TYPES OF VARIABLES IN POLITICAL SCIENCE RESEARCH

VARIABLE TYPE & DEFINITION	DESCRIPTIONS & CHARACTERISTICS	EXAMPLES (with context)
DEPENDENT VARIABLE (Y) - The outcome or effect being studied. Its value is hypothesized to change.	MEASURED AS THE RESPONSE; 'WHAT HAPPENS'.	Example: ELECTION OUTCOME. Context: Measuring if voter turnout (X) affects the winning party (Y).
INDEPENDENT VARIABLE (X) - The cause or explanation, manipulated or observed.	PREDICTOR; THE CAUSAL FACTOR. 'WHAT MAKES IT HAPPEN'.	Example: VOTER AGE. Context: Analyzing how the age of the voter (X) influences their political affiliation (Y).
NOMINAL VARIABLE - Categorical; no intrinsic order or numerical value.	QUALITATIVE. LABELING OR NAMING. DISTINCTIONS OF KIND.	Example: POLITICAL PARTY (Democrat, Republican, Independent, Green). Context: Comparing beliefs across parties.
ORDINAL VARIABLE - Categorical; can be ranked or ordered.	QUALITATIVE. ORDER EXISTS, BUT INTERVALS BETWEEN VALUES ARE NOT UNIFORM. RANKING.	Example: EDUCATION LEVEL (e.g., High School, Bachelor's, Master's, Ph.D.). Context: Examining policy knowledge based on education.
INTERVAL / RATIO VARIABLE - Quantitative; numerical values with uniform intervals.	INTERVAL: NO TRUE ZERO (e.g., Year). RATIO: HAS TRUE ZERO (can compare ratios). NUMERICAL DISTANCE.	Example: MEDIAN INCOME (e.g., \$40,000, \$80,000, \$120,000). Context: Investigating relationship between income and political donation.

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Table 3.2 Types of Variables in Political Science

3.3.2 Independent and dependent variables

Independent variables are factors that are expected to influence or cause changes in other variables. **Dependent variables** are the outcomes that are measured to see the effect of the independent variable.

For example, in the hypothesis “Higher levels of education increase political participation,” education is the independent variable, while political participation is the dependent variable. Identifying these correctly is crucial for designing valid research.

Fill in the blank: In the hypothesis “Higher levels of education increase political participation,” education is the independent variable and _____ is the dependent variable.



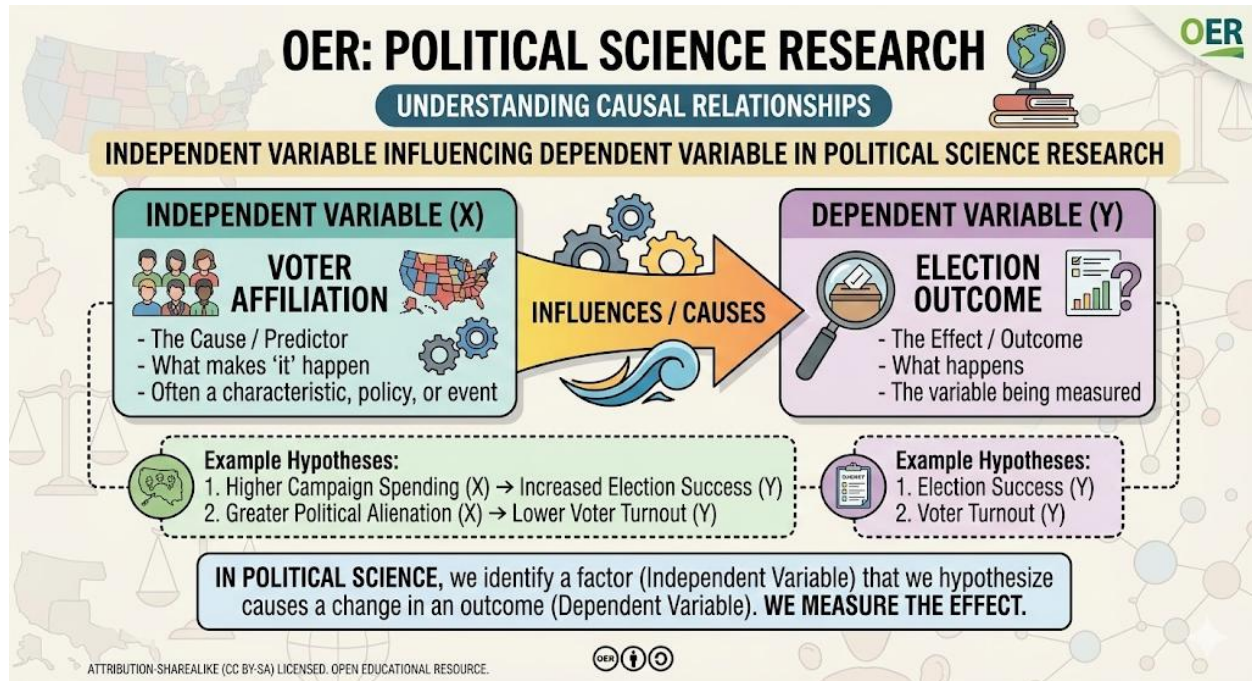


Diagram showing relationship between independent and dependent variables. Caption: Figure 3.4 Independent and Dependent Variables

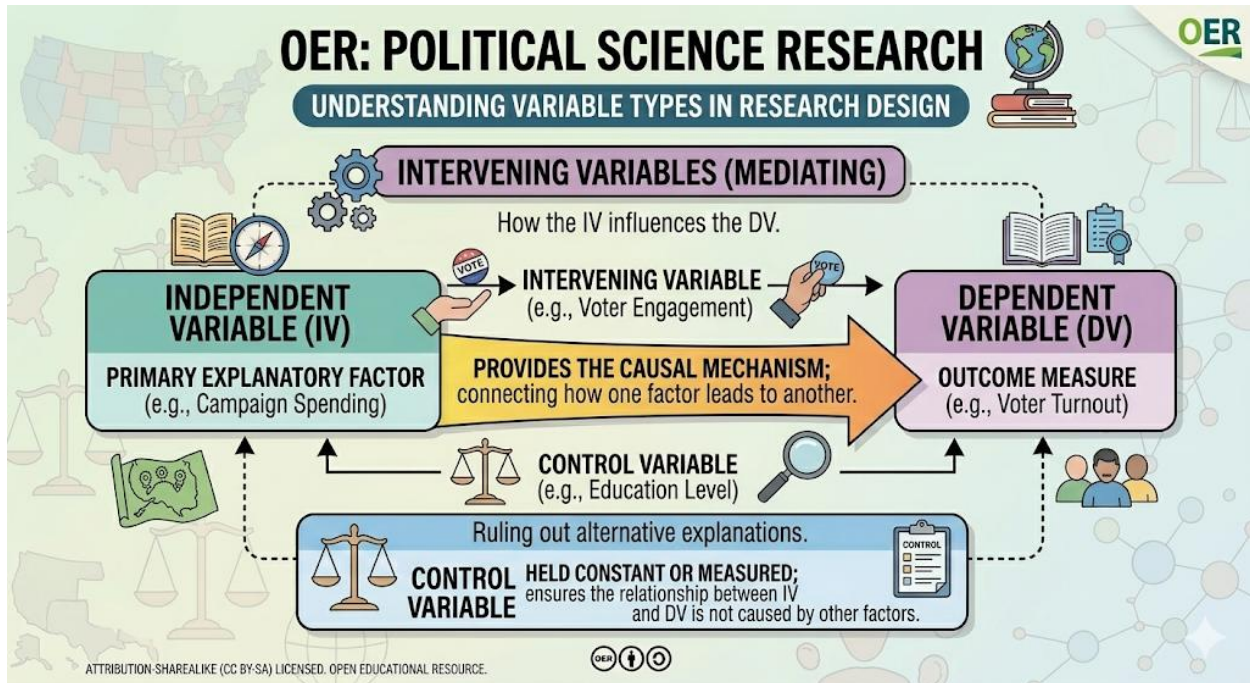
3.3.3 Control and intervening variables

Control variables are factors that researchers hold constant to prevent them from affecting the relationship between independent and dependent variables. For example, when studying the effect of income on voter turnout, researchers may control for age to ensure that differences in turnout are not due to age differences.

Intervening variables are factors that explain how or why an independent variable influences a dependent variable. For instance, education may influence political participation through increased political awareness, which acts as an intervening variable.

Fill in the blank: Control variables are held constant, while _____ variables explain how or why an independent variable influences a dependent variable.





Box 3.2 Control and Intervening Variables

Pilot questions 3.3

Define a variable in Political Science research.

Distinguish between qualitative and quantitative variables with examples.

Identify the independent and dependent variables in the hypothesis: “Higher income increases voter turnout.”

What is the purpose of a control variable?

Give one example of an intervening variable in Political Science research.

3.3 Variables In Political Science Research

3.3.1 Definition and types of variables

A **variable** is any characteristic or attribute that can take on different values in research. In Political Science, variables are used to measure and analyse phenomena such as voter turnout, political trust, or party affiliation.

Variables can be classified into different types. **Qualitative variables** describe categories or qualities, such as political party membership or gender. **Quantitative variables** measure numerical values, such as age, income, or the percentage of voter turnout. These distinctions are important because they determine the methods of analysis that can be applied.

Fill in the blank: A variable is any characteristic or attribute that can take on different _____ in research.



Types of Variables in Political Science: Descriptions and Examples			
Variable Type	Level of Measurement	Description	Examples
QUANTITATIVE / NUMERICAL	Continuous/Discrete	Represents quantities; can be counted or measured	- Voter Turnout (%) - GDP per Capita - Freedom House Score
QUALITATIVE / CATEGORICAL	Nominal	Named categories with no intrinsic order	- Political Party (Democrat, Republican, Green) - Type of Government (Democracy, Autocracy, Monarchy) - Region (North America, Europe, Asia)
	Ordinal	Categories with a specific order or rank, but the distance between categories is uneven or unknown	- Level of Education (High School, Bachelor's, Master's) - Ideological Scale (Very Liberal, Liberal, Moderate, Conservative, Very Conservative) - Political Interest (Not Interested, Somewhat Interested, Very Interested)
INDEPENDENT (X)	N/A	The variable hypothesized to cause or influence another variable; the 'predictor' or 'cause'	- Education Level (effect on voting) - Political Campaign Spending (effect on election results)
DEPENDENT (Y)	N/A	The variable that is influenced or predicted by the independent variable; the 'outcome' or 'effect'	- Voter Turnout - Election Outcome - Policy Adoption

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Table 3.2 Types of Variables in Political Science

3.3.2 Independent and dependent variables

Independent variables are factors that are expected to influence or cause changes in other variables. **Dependent variables** are the outcomes that are measured to see the effect of the independent variable.

For example, in the hypothesis "Higher levels of education increase political participation," education is the independent variable, while political participation is the dependent variable. Identifying these correctly is crucial for designing valid research.

Fill in the blank: In the hypothesis "Higher levels of education increase political participation," education is the independent variable and _____ is the dependent variable.



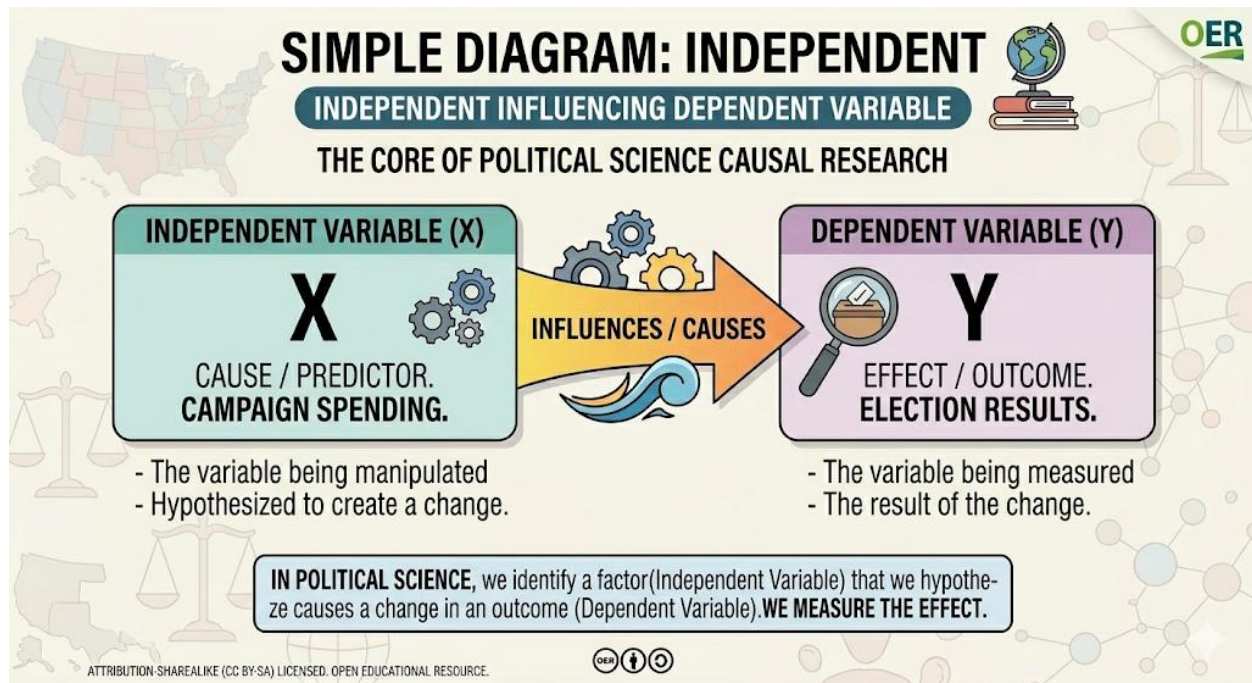


Diagram showing relationship between independent and dependent variables. Caption: Figure 3.4 Independent and Dependent Variables

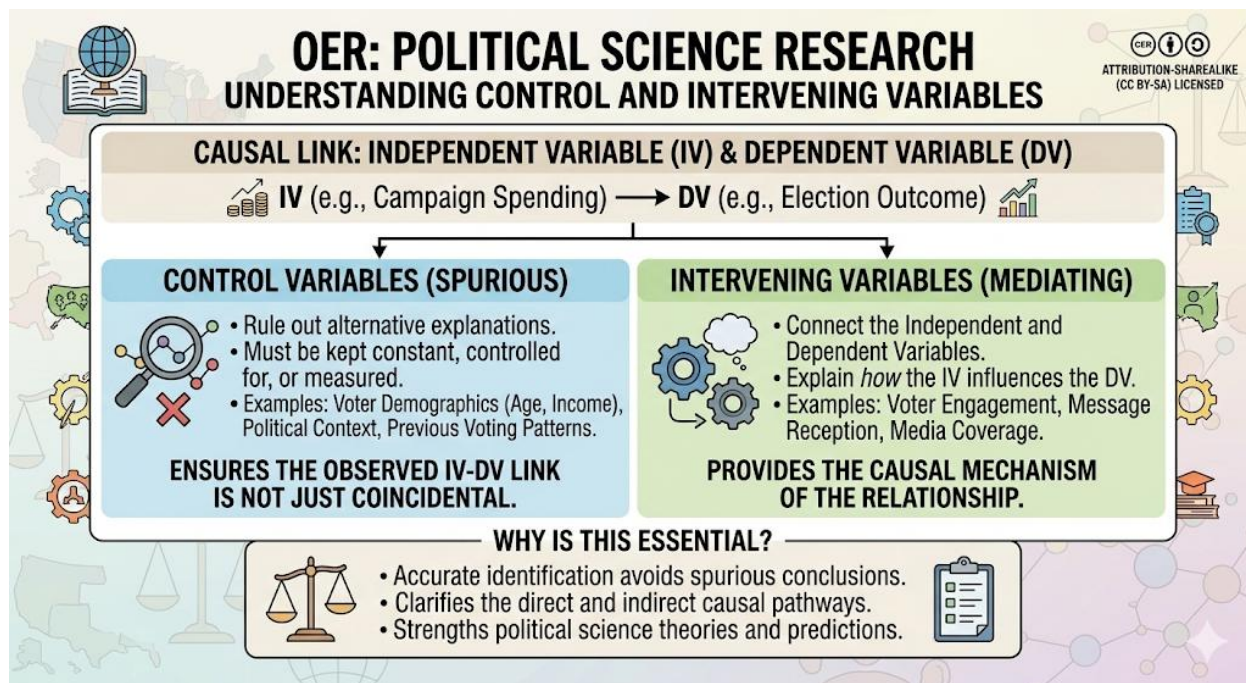
3.3.3 Control and intervening variables

Control variables are factors that researchers hold constant to prevent them from affecting the relationship between independent and dependent variables. For example, when studying the effect of income on voter turnout, researchers may control for age to ensure that differences in turnout are not due to age differences.

Intervening variables are factors that explain how or why an independent variable influences a dependent variable. For instance, education may influence political participation through increased political awareness, which acts as an intervening variable.

Fill in the blank: Control variables are held constant, while _____ variables explain how or why an independent variable influences a dependent variable.





Box 3.2 Control and Intervening Variables

Pilot questions 3.3

Define a variable in Political Science research.

Distinguish between qualitative and quantitative variables with examples.

Identify the independent and dependent variables in the hypothesis: “Higher income increases voter turnout.”

What is the purpose of a control variable?

Give one example of an intervening variable in Political Science research.

3.4 Operationalisation Of Variables

3.4.1 Measurement and indicators

Operationalisation is the process of defining how a variable will be measured in practice. In Political Science, this means translating abstract concepts such as democracy, political trust, or participation into measurable indicators.

For example, the concept of democracy can be operationalised using indicators such as free elections, rule of law, and protection of civil liberties. Similarly, political participation can be measured through voter turnout, membership in political organisations, or attendance at rallies.

Operationalisation is crucial because it ensures that research is systematic and that findings can be compared across studies. Without clear measurement, variables remain vague and cannot be tested empirically.



Fill in the blank: Operationalisation is the process of defining how a variable will be _____ in practice.



OPERATIONALIZING POLITICAL CONCEPTS: FROM ABSTRACT TO MEASURABLE

Political Concept	Conceptual Definition	Operational Definition	Measurable Indicators
DEMOCRACY	System of government where power is vested in the people, and persons, and entities	Measures of political rights, civil liberties, and use of political and legal	- Freedom House Score - Polity IV Index
POLITICAL ENGAGEMENT	Citizens of citizens to influence politicians and political outcomes	Actions of citizens to influence political outcomes	- Voter Turnout % - Party Membership - Participation in protests/rallies
CAUSATION IN CONFLICT	Factors leading to onset or conflict and formation of violent conflict	Factors leading to onset or escalation of violent conflict	- Number of battle deaths - Duration of civil war - Presence of specific triggering events
STATE CAPACITY	Ability of a state to implement policies, and implementers in conception	Ability of a state to implement policies, provide services, and maintain order	- Tax Revenue as % of GDP - Bureaucratic Quality Index - Control of corruption
IDEOLOGY	System of ideas and ideals, economics and forms of political ideology	System of ideas and ideals, especially one that forms the basis of economic or political theory and policy	- Self-reported placement on a Liberal-Conservative scale - Analysis of policy positions - Party platform content

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Table 3.3 Examples of Operationalising Political Concepts

3.4.2 Challenges in operationalising political concepts

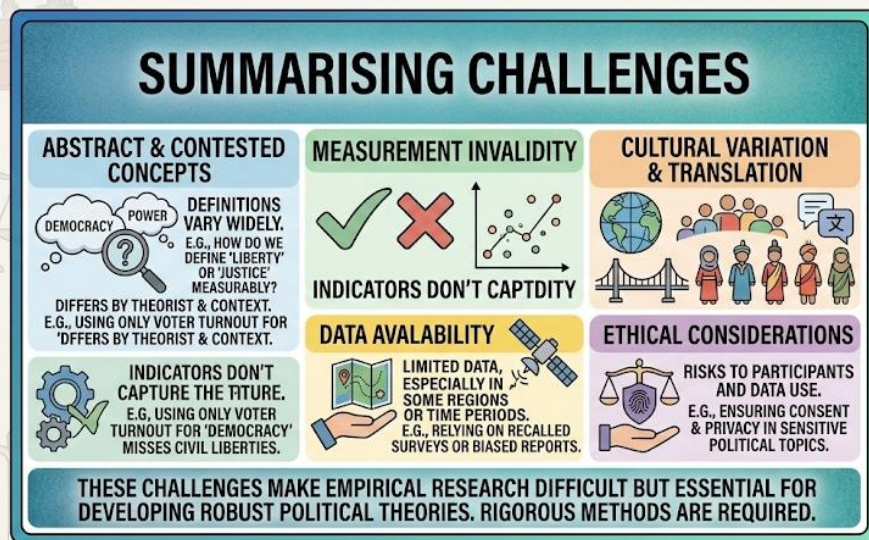
Operationalising political concepts is not always straightforward. Many concepts are complex, contested, or context-dependent. For instance, democracy may mean different things in different societies, and measuring political trust may vary depending on cultural expectations.

Another challenge is ensuring validity and reliability. **Validity** means that the indicators truly measure the intended concept, while **reliability** means that the measurement produces consistent results across different contexts or times. Researchers must carefully select indicators that capture the essence of the concept without oversimplifying it.

Fill in the blank: Validity means that indicators measure the intended concept, while _____ means that the measurement produces consistent results.



OPEN EDUCATIONAL RESOURCE: CHALLENGES IN OPERATIONALISING POLITICAL CONCEPTS



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Box 3.3 Challenges in Operationalising Political Concepts

Pilot questions 3.4

Define operationalisation in Political Science research.

Give one example of how democracy can be operationalised.

What is the importance of operationalisation in research?

Explain the difference between validity and reliability in measurement.

State one challenge researchers face when operationalising political concepts.

Series summary

This Series has introduced you to the logic of political inquiry and the role of variables in Political Science research. We began by examining the foundations of political inquiry, including its meaning, scope, and the distinction between normative and empirical approaches. Then we explored the logic of scientific reasoning, focusing on deductive and inductive reasoning and how theory connects with evidence. Following that, we studied variables in Political Science research, defining their types and distinguishing between independent, dependent, control, and intervening variables. Finally, we concluded with the operationalisation of variables, looking at measurement, indicators, and the challenges of applying these concepts to complex political phenomena.

By completing these Parts, you should now be able to define the meaning and scope of political inquiry (SLO 3.1), distinguish between normative and empirical approaches (SLO 3.2), explain



and apply deductive and inductive reasoning (SLOs 3.3 and 3.4), analyse the link between theory and evidence (SLO 3.5), classify different types of variables (SLO 3.6), differentiate between independent and dependent variables (SLO 3.7), explain the role of control and intervening variables (SLO 3.8), apply operationalisation through measurement and indicators (SLO 3.9), and evaluate challenges in operationalising political concepts (SLO 3.10). These outcomes provide you with a strong foundation for logical reasoning and variable analysis in Political Science research, preparing you for more advanced inquiry and application.

Glossary of terms

Control variable: A factor held constant in research to prevent it from influencing the relationship between independent and dependent variables.

Deductive reasoning: A logical process that begins with general principles or theories and applies them to specific cases.

Dependent variable: The outcome being measured in a study, which is influenced by changes in the independent variable.

Empirical inquiry: An approach to political inquiry that focuses on observable facts and evidence.

Independent variable: A factor expected to influence or cause changes in another variable within a study.

Inductive reasoning: A logical process that begins with specific observations and builds towards general principles or theories.

Intervening variable: A factor that explains how or why an independent variable influences a dependent variable.

Normative inquiry: An approach to political inquiry that focuses on values, ideals, and what ought to be.

Operationalisation: The process of defining how a variable will be measured in practice, often by identifying indicators.

Political inquiry: The systematic investigation of political phenomena, including behaviour, institutions, and processes.

Reliability: The quality of a measurement that produces consistent results across different contexts or times.

Theory: A set of ideas that explains political phenomena and provides a framework for research.

Validity: The quality of a measurement that ensures indicators truly measure the intended concept.

Variable: Any characteristic or attribute that can take on different values in research.



Concept check questions 3

Objective questions

Define political inquiry. (Linked to SLO 3.1)

Which type of inquiry focuses on values and ideals? (Linked to SLO 3.2)

Deductive reasoning begins with general principles and applies them to _____ cases.
(Linked to SLO 3.3)

Inductive reasoning begins with specific observations and builds towards _____ principles or theories. (Linked to SLO 3.4)

In the hypothesis “Higher levels of education increase political participation,” identify the independent variable. (Linked to SLO 3.7)

Short-answer questions

Explain the difference between normative and empirical inquiry. (Linked to SLO 3.2)

Provide one example of deductive reasoning in Political Science. (Linked to SLO 3.3)

Provide one example of inductive reasoning in Political Science. (Linked to SLO 3.4)

Distinguish between qualitative and quantitative variables with examples. (Linked to SLO 3.6)

Why are control variables important in Political Science research? (Linked to SLO 3.8)

Long-answer questions

Analyse how theory and evidence are linked in Political Science research. (Linked to SLO 3.5)

Evaluate the challenges of operationalising complex political concepts. (Linked to SLO 3.10)

Demonstrate how independent, dependent, control, and intervening variables interact in a Political Science study. (Linked to SLOs 3.7 and 3.8)

Answers to Concept Check Questions [Series 3]

Objective questions

Political inquiry is the systematic investigation of political phenomena, including behaviour, institutions, and processes.

Normative inquiry.

Specific.

General.

Education level.

Short-answer questions



Normative inquiry focuses on values and ideals, while empirical inquiry focuses on observable facts and evidence.

Applying the theory that democracies are more stable than authoritarian regimes to specific countries.

Observing voting behaviour across elections and developing a theory about the influence of social media.

Qualitative variables describe categories (e.g., political party membership), while quantitative variables measure numerical values (e.g., voter turnout percentage).

Control variables are important because they prevent external factors from interfering with the relationship between independent and dependent variables.

Long-answer questions

Basic response: Theory provides explanations of political phenomena, while evidence tests or builds these theories. Deductive reasoning tests theories against evidence, and inductive reasoning builds theories from evidence. *Value-added response:* Outstanding learners may add that linking theory and evidence ensures Political Science remains systematic and credible, allowing for both theoretical development and practical application in governance.

Basic response: Challenges include complexity of concepts, differences across societies, and ensuring validity and reliability. *Value-added response:* Learners may expand by noting that operationalisation risks oversimplifying abstract ideas, and that researchers must balance precision with inclusivity to capture diverse political realities.

Basic response: Independent variables influence dependent variables, control variables are held constant to prevent interference, and intervening variables explain the mechanism of influence. *Value-added response:* Learners may add that recognising these interactions allows researchers to design more robust studies, ensuring that findings are both valid and reliable, and that causal relationships are properly understood in Political Science.

Answers to Pilot Questions [Series 3]

Part 3.1 Foundations of political inquiry

Political inquiry is the systematic investigation of political phenomena, including behaviour, institutions, and processes.

Examples include individual voter behaviour and international relations.

Normative inquiry focuses on values, ideals, and what ought to be.

An example is: “What percentage of citizens voted in the last election?”

They are complementary because normative inquiry provides guidance on values, while empirical inquiry offers evidence to support or challenge those values.



Part 3.2 Logic of scientific reasoning in Political Science

Deductive reasoning is a logical process that begins with general principles or theories and applies them to specific cases.

For example, applying the theory that democracies are more stable than authoritarian regimes to specific countries.

Inductive reasoning is a logical process that begins with specific observations and builds towards general principles or theories.

For example, studying voting behaviour across several elections and developing a theory about the influence of social media.

Linking theory and evidence is important because it ensures Political Science remains systematic and credible.

Part 3.3 Variables in Political Science research

A variable is any characteristic or attribute that can take on different values in research.

Qualitative variables describe categories (e.g., party membership), while quantitative variables measure numerical values (e.g., voter turnout percentage).

Independent variable: income; dependent variable: voter turnout.

Control variables prevent external factors from interfering with the relationship between independent and dependent variables.

An example of an intervening variable is political awareness, which explains how education influences political participation.

Part 3.4 Operationalisation of variables

Operationalisation is the process of defining how a variable will be measured in practice.

Democracy can be operationalised through indicators such as free elections, rule of law, and civil liberties.

Operationalisation is important because it ensures that abstract concepts are measurable and research findings are systematic.

Validity means indicators measure the intended concept, while reliability means the measurement produces consistent results.

One challenge is that political concepts are often complex, contested, and context-dependent.

References and Attributions [Series 3]

Figures

Figure 3.1 Scope of Political Inquiry: AI-generated diagram prompt suggestion: “Generate a labelled diagram showing the scope of political inquiry: individual behaviour,



institutions, policies, international relations.” Suggested OER search string: “scope of political inquiry political science OER diagram”.

Figure 3.2 Deductive Reasoning in Political Science: AI-generated diagram prompt suggestion: “Generate a flow diagram showing deductive reasoning in Political Science: theory, hypothesis, observation, confirmation.” Suggested OER search string: “deductive reasoning political science OER diagram”.

Figure 3.3 Inductive Reasoning in Political Science: AI-generated diagram prompt suggestion: “Generate a flow diagram showing inductive reasoning in Political Science: observation, pattern, hypothesis, theory.” Suggested OER search string: “inductive reasoning political science OER diagram”.

Figure 3.4 Independent and Dependent Variables: AI-generated diagram prompt suggestion: “Generate a diagram showing independent variable influencing dependent variable in Political Science research.” Suggested OER search string: “independent vs dependent variables political science OER diagram”.

Tables

Table 3.1 Comparison of Normative and Empirical Inquiry: AI-generated table prompt suggestion: “Create a comparison table showing differences between normative and empirical inquiry in Political Science.” Suggested OER search string: “normative vs empirical political inquiry OER”.

Table 3.2 Types of Variables in Political Science: AI-generated table prompt suggestion: “Create a table showing types of variables in Political Science with descriptions and examples.” Suggested OER search string: “types of variables political science OER”.

Table 3.3 Examples of Operationalising Political Concepts: AI-generated table prompt suggestion: “Create a table showing examples of operationalising political concepts with measurable indicators.” Suggested OER search string: “operationalisation of variables political science OER”.

Boxes

Box 3.1 Linking Theory and Evidence in Political Science: AI-generated text box prompt suggestion: “Create a text box summarising how theory and evidence are linked in Political Science.” Suggested OER search string: “linking theory and evidence political science OER”.

Box 3.2 Control and Intervening Variables: AI-generated text box prompt suggestion: “Create a text box summarising control and intervening variables in Political Science research.” Suggested OER search string: “control and intervening variables political science OER”.

Box 3.3 Challenges in Operationalising Political Concepts: AI-generated text box prompt suggestion: “Create a text box summarising challenges in operationalising political concepts in Political Science.” Suggested OER search string: “challenges in operationalising political concepts OER”.

General references



Course content adapted from *POL 302: Logic and Methods of Political Science Research* (Learning Outcomes and Course Contents).

Illustrations are either AI-generated using suggested prompts or sourced through Open Educational Resources (OER) using the provided search strings.



- **Course code: POL 302**
- **Course title: Logic and Methods of Political Science Research**
- **Course credit load: 2**

SERIES 4: Problem Formulation In Political Research

Series outline

Part 4.1 Identifying and defining research problems

- 4.1.1 Meaning of a research problem
- 4.1.2 Sources of research problems in Political Science
- 4.1.3 Criteria for selecting a good research problem

Part 4.2 Reviewing literature and contextualising the problem

- 4.2.1 Purpose of literature review in problem formulation
- 4.2.2 Linking existing studies to new research problems
- 4.2.3 Avoiding duplication and ensuring originality

Part 4.3 Structuring research problems into questions and objectives

- 4.3.1 Converting problems into clear research questions
- 4.3.2 Setting specific and measurable objectives
- 4.3.3 Aligning questions and objectives with Political Science inquiry

Part 4.4 Refining and justifying research problems

- 4.4.1 Feasibility and scope considerations
- 4.4.2 Ethical and practical dimensions of problem formulation
- 4.4.3 Justifying the significance of the research problem

Introduction

In the last Series, we explored the logic of political inquiry and examined how variables are defined, classified, and operationalised in Political Science research. Building on that foundation, this Series turns to the crucial stage of **problem formulation**, which is the starting point of any meaningful research project. A well-formulated problem provides clarity, direction, and justification for the entire study, making it one of the most important skills for a researcher to master.

The aim of this Series is to equip you with the ability to identify, define, structure, and refine research problems in Political Science, ensuring that they are both feasible and significant.

We shall commence this Series by identifying and defining research problems, considering their meaning, sources, and the criteria for selecting a good problem. Next, we will review relevant



literature to contextualise the problem, linking existing studies to new inquiries while ensuring originality. Following that, we will move on to structuring research problems into clear questions and objectives that align with Political Science inquiry. Finally, we will wrap up by refining and justifying research problems, taking into account feasibility, ethical considerations, and the significance of the study.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- SLO 4.1** define the meaning of a research problem in Political Science,
- SLO 4.2** identify sources of research problems relevant to Political Science inquiry,
- SLO 4.3** evaluate criteria for selecting a good research problem,
- SLO 4.4** explain the purpose of a literature review in problem formulation,
- SLO 4.5** analyse how existing studies can be linked to new research problems,
- SLO 4.6** demonstrate how to avoid duplication and ensure originality in problem formulation,
- SLO 4.7** convert research problems into clear and focused research questions,
- SLO 4.8** design specific and measurable research objectives,
- SLO 4.9** align research questions and objectives with Political Science inquiry,
- SLO 4.10** assess the feasibility and scope of a research problem,
- SLO 4.11** explain ethical and practical considerations in problem formulation, and
- SLO 4.12** justify the significance of a research problem in Political Science.

4.1 Identifying And Defining Research Problems

4.1.1 Meaning of a research problem

A **research problem** is a clearly defined issue, question, or gap in knowledge that a researcher seeks to investigate. In Political Science, a research problem provides the foundation for inquiry by focusing attention on a specific aspect of politics that requires explanation or analysis. Without a well-defined problem, research risks being vague, unfocused, or irrelevant.

A good research problem is not simply a topic but a precise statement of what needs to be studied. For example, instead of choosing “democracy” as a topic, a research problem might be framed as “What factors explain declining voter turnout in established democracies?”

Fill in the blank: A research problem is a clearly defined _____, question, or gap in knowledge that a researcher seeks to investigate.



OER: DEMYSTIFYING THE RESEARCH PROCESS IN POLITICAL SCIENCE

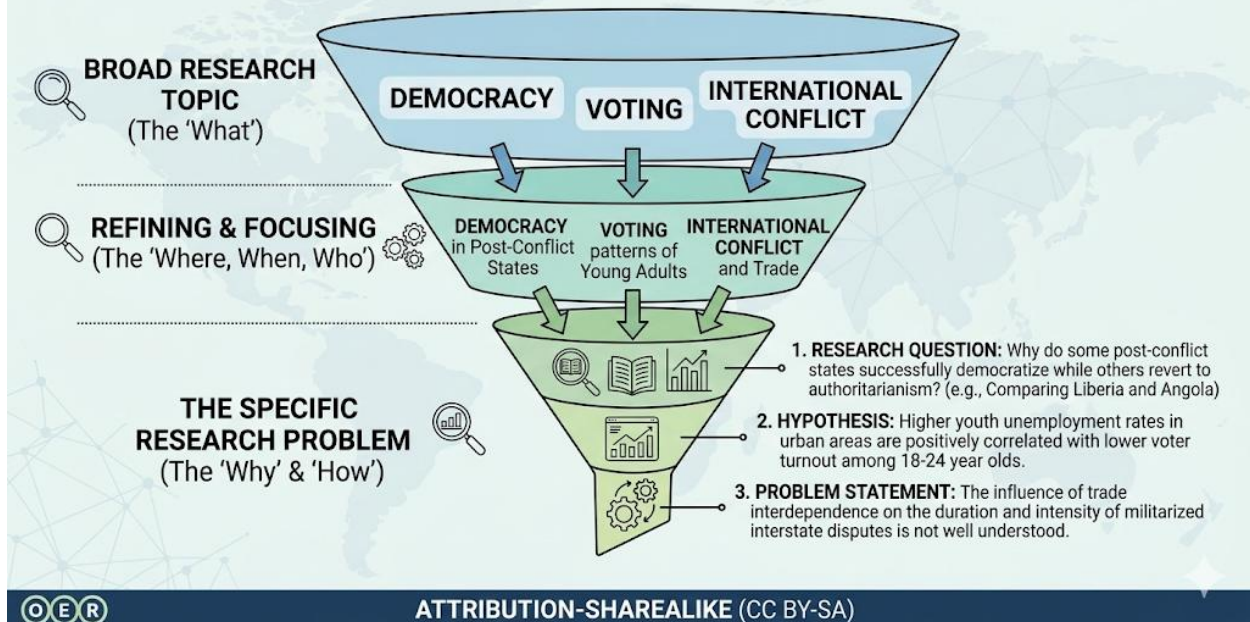


Diagram showing the difference between a topic and a research problem. Caption: Figure 4.1 From Topic to Research Problem

4.1.2 Sources of research problems in Political Science

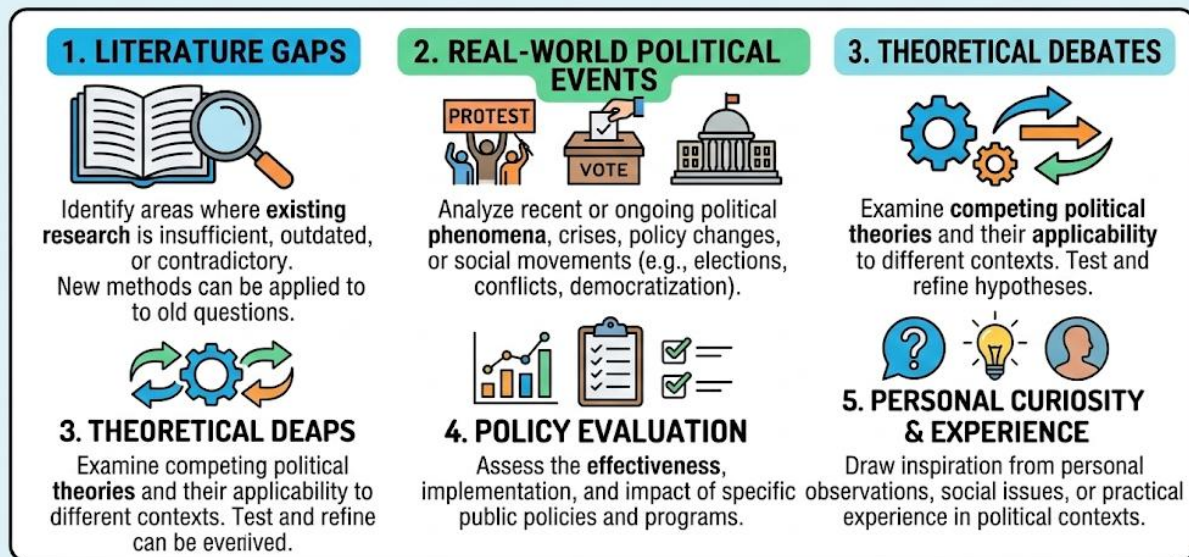
Research problems can arise from several sources. One common source is **existing literature**, where gaps or unanswered questions can be identified. Another source is **current political events**, which often raise new issues requiring scholarly investigation. **Personal experience or observation** may also inspire research problems, especially when linked to broader political processes.

For example, a researcher may notice that despite high levels of education, political participation remains low in certain societies. This observation could lead to a research problem exploring the relationship between education and participation.

Fill in the blank: Existing literature, current political events, and _____ are common sources of research problems in Political Science.



SOURCES OF RESEARCH PROBLEMS IN POLITICAL SCIENCE



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SOURCE: OER POLITICAL SCIENCE GUIDE

Box 4.1 Sources of Research Problems in Political Science

4.1.3 Criteria for selecting a good research problem

Not all problems are suitable for research. A **good research problem** must meet certain criteria. It should be **clear and specific**, avoiding vague or overly broad statements. It must be **researchable**, meaning that data can be collected and analysed to address it. It should also be **significant**, contributing to knowledge or addressing an important political issue. Finally, it must be **feasible**, considering the researcher's time, resources, and access to information.

For instance, a problem such as "Why do people vote?" is too broad, while "What factors explain youth voter turnout in Nigeria's 2019 elections?" is more specific, researchable, and feasible.

Fill in the blank: A good research problem must be clear, specific, researchable, significant, and _____.



CRITERIA FOR SELECTING A GOOD RESEARCH PROBLEM IN POLITICAL SCIENCE

Criterion	Description	Good Example	Bad Example
SIGNIFICANCE & RELEVANCE	The problem addresses an important political issue or fills a gap in existing knowledge. It has theoretical or practical implications.	Analyzing the impact of social media disinformation on voter turnout in emerging democracies.	Counting the number of paperclips used in a local government office.
FEASIBILITY & RESEARCHABILITY	The problem can be investigated within limits of time, resources, data availability, and researcher's skills.	Comparing public opinion on climate change policies in two specific countries using available survey data.	Conducting personal interviews with all world leaders to understand their true motivations for foreign policy decisions.
PRECISION & CLARITY	The problem is clearly defined and focused, with specific variables and a manageable scope.	Investigating the relationship between campaign spending and incumbent reelection rates US Senate races (2010-2020).	Studying why some countries have better governments than others.
NOVELTY & ORIGINALITY	The problem offers a new perspective, tests an existing theory in a new context, or uses a novel methodological approach.	Evaluating the effect of conditional cash transfers on women's political participation in rural Peru.	Repeating a study from 30 years ago without any changes or new data.

Table 4.1 Criteria for Selecting a Good Research Problem

Pilot questions 4.1

Define a research problem in Political Science.

Give one example of how a topic can be turned into a research problem.

State two sources of research problems in Political Science.

List four criteria for selecting a good research problem.

Why is feasibility important in choosing a research problem?

4.2 Reviewing Literature And Contextualising The Problem

4.2.1 Purpose of literature review in problem formulation

A **literature review** is a systematic examination of existing studies, theories, and findings related to a research problem. Its purpose in problem formulation is to provide background knowledge, identify gaps, and establish the relevance of the proposed study. In Political Science, reviewing literature helps ensure that the research problem is grounded in scholarly work and contributes meaningfully to ongoing debates.

By engaging with literature, researchers avoid reinventing the wheel and instead build upon established knowledge. This process also helps refine the scope of the problem and clarify its significance.

Fill in the blank: A literature review is a systematic examination of existing studies, theories, and _____ related to a research problem.



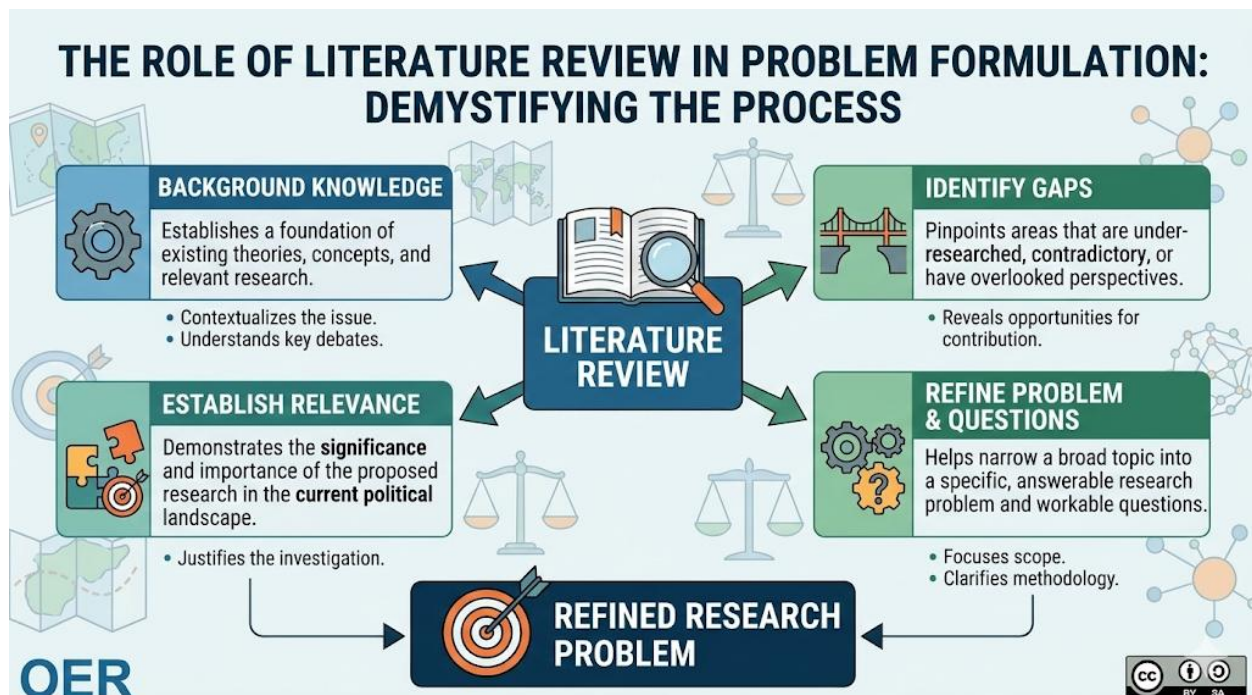


Diagram showing the role of literature review in problem formulation (background knowledge → gaps → relevance → refinement). Caption: Figure 4.2 Role of Literature Review in Problem Formulation

4.2.2 Linking existing studies to new research problems

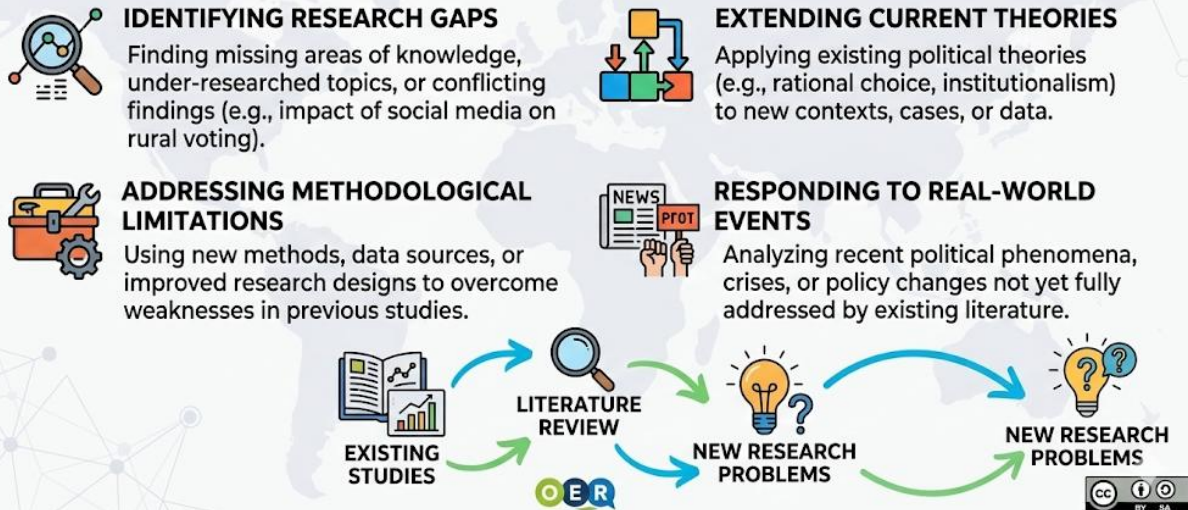
A key function of literature review is to **link existing studies** to new research problems. This involves identifying what has already been studied and showing how the proposed research extends, challenges, or fills gaps in the existing body of knowledge.

For example, if previous studies have examined voter turnout in urban areas, a researcher might propose studying turnout in rural areas to address an overlooked dimension. This linkage demonstrates continuity with past scholarship while highlighting originality.

Fill in the blank: Linking existing studies to new research problems involves identifying what has already been studied and showing how the proposed research _____ or fills gaps.



LINKING EXISTING STUDIES TO NEW RESEARCH PROBLEMS IN POLITICAL SCIENCE



Box 4.2 Linking Existing Studies to New Research Problems

4.2.3 Avoiding duplication and ensuring originality

One of the most important aspects of problem formulation is ensuring that the research problem is **original** and not a duplication of existing studies. Duplication occurs when a researcher repeats a study without adding new insights or perspectives. Originality, on the other hand, means that the research problem contributes something new, whether by exploring a different context, applying a new method, or addressing an overlooked issue.

Ensuring originality requires careful reading of literature and critical evaluation of what has already been done. This process helps researchers justify why their study is necessary and valuable.

Fill in the blank: Originality in research means that the problem contributes something new, whether by exploring a different context, applying a new method, or addressing an _____ issue.



COMPARING DUPLICATION AND ORIGINALITY IN POLITICAL SCIENCE RESEARCH PROBLEM FORMULATION

Characteristic	Duplication (Replication without Value)	Originality (New Contribution)
Research Question	Repeating a well-studied question with same data/methods	Asking a new question, or applying an existing theory to a new case/data
Literary Review	Just summarizing existing studies	Identifying a gap, conflict, or under-researched area
Methodology	Using identical research design	Employing a new method, improving an existing one, or novel data combination
Value/Contribution	Very limited contribution	Extends knowledge, refines theory, or informs policy



Table 4.2 Avoiding Duplication and Ensuring Originality

Pilot questions 4.2

What is the purpose of a literature review in problem formulation?

How can existing studies be linked to new research problems?

Why is avoiding duplication important in Political Science research?

Give one example of how originality can be demonstrated in problem formulation.

What role does critical evaluation of literature play in ensuring originality?

4.3 Structuring Research Problems Into Questions And Objectives

4.3.1 Converting problems into clear research questions

A **research question** is a precise, focused inquiry that guides the investigation of a research problem. Converting a problem into a question helps narrow the scope and makes the study more manageable. In Political Science, research questions often ask about relationships, causes, or effects, such as “How does social media influence youth political participation?”

A well-formulated research question should be specific, researchable, and aligned with the broader problem. It should avoid vagueness and be framed in a way that allows for systematic investigation.

Fill in the blank: A research question is a precise, focused inquiry that guides the investigation of a _____ problem.



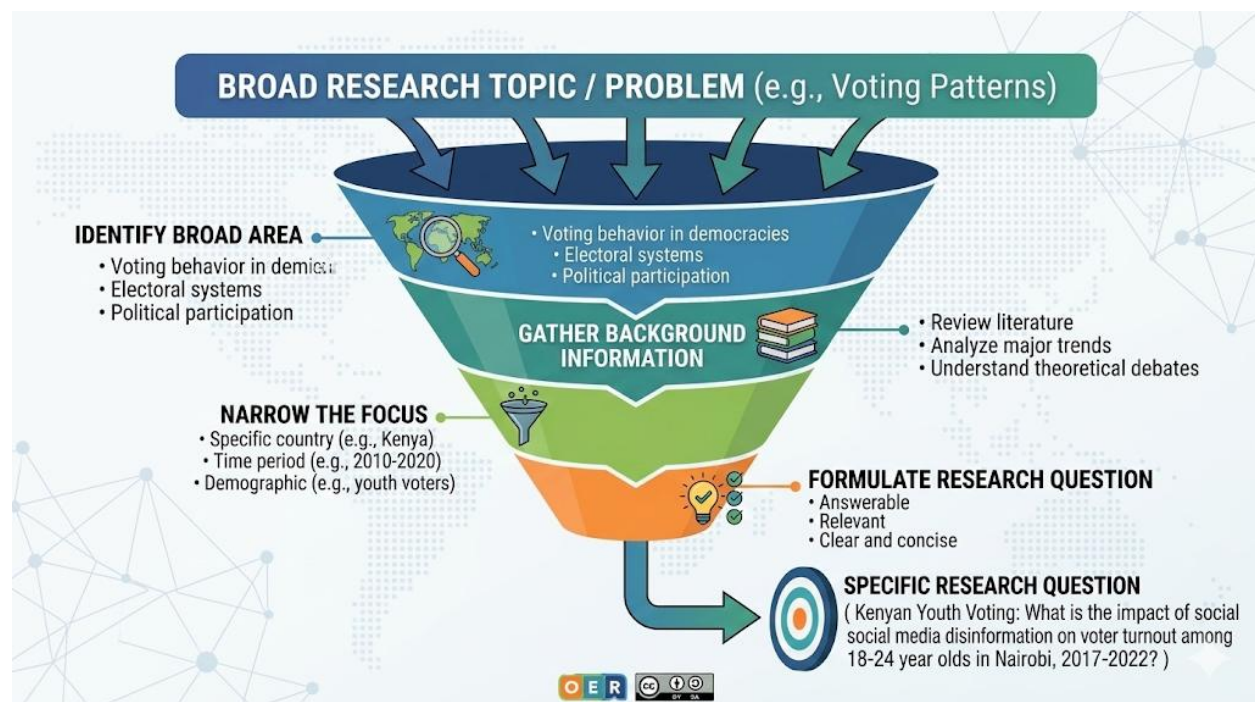


Diagram showing the process: Broad problem → Narrow focus → Research question. Caption: Figure 4.3 Converting Problems into Research Questions

4.3.2 Setting specific and measurable objectives

Research objectives are statements that describe what the study intends to achieve. They provide direction and serve as benchmarks for evaluating progress. Objectives should be **specific**, meaning clearly defined, and **measurable**, meaning they can be assessed through data collection and analysis.

For example, if the research question is “How does education affect political participation among youth?”, the objectives might include:

To examine the relationship between education level and voter turnout among youth.

To analyse how education influences political awareness and engagement.

Fill in the blank: Research objectives should be specific and _____ so they can be assessed through data collection and analysis.



EXAMPLES OF RESEARCH QUESTIONS & OBJECTIVES IN POLITICAL SCIENCE



Research Question	Corresponding Research Objective(s)	Objective Type/Goal
How do different electoral systems affect women's representation in national parliaments? 	To compare the impact of proportional representation and majoritarian systems on female candidates' success rates. 	Comparative Analysis
To what extent does social media disinformation influence youth voting patterns in urban areas? 	To measure the correlation between exposure to disinformation and changes in voting intentions among 18-24 year olds. 	Impact Assessment
What factors explain the successful implementation of decentralization policies in some local governments but not others? 	To identify and evaluate the role of leadership, resources, and civic engagement as explanatory variables. 	Explanatory / Casual Modeling
How has the definition of 'democratic citizenship' evolved in post-conflict states in Southeast Asia? 	To trace historical changes in citizenship rights and responsibilities across cases over the last three decades. 	Historical & Conceptual Analysis



Table 4.3 Examples of Research Objectives

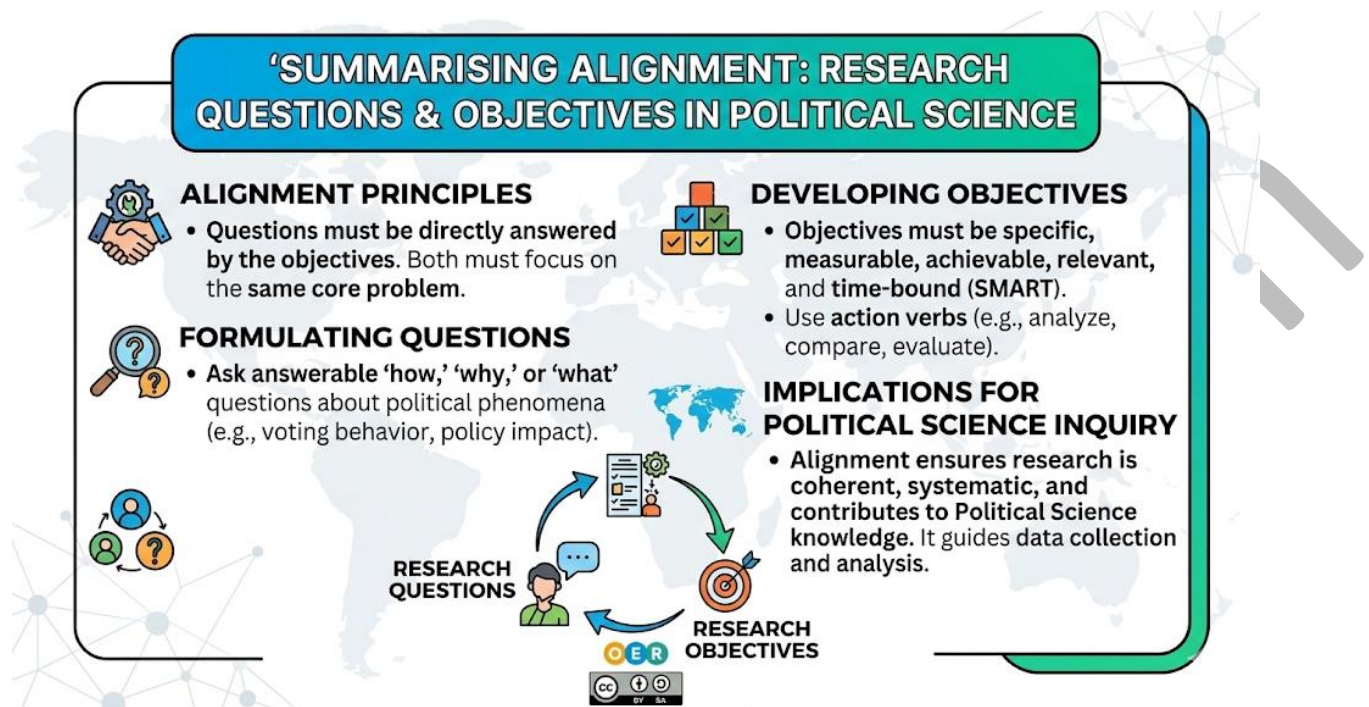
4.3.3 Aligning questions and objectives with Political Science inquiry

It is important that research questions and objectives are aligned with the broader goals of Political Science inquiry. This means they should contribute to understanding political behaviour, institutions, processes, or policies. Misaligned questions risk producing findings that are irrelevant or disconnected from the discipline.

For instance, a question about the impact of climate change on voting behaviour aligns with Political Science because it examines how environmental issues influence political participation. Objectives derived from such a question would also contribute to knowledge about political behaviour in contemporary contexts.

Fill in the blank: Research questions and objectives must align with the broader goals of _____ inquiry to ensure relevance and contribution.





Box 4.3 Aligning Questions and Objectives with Political Science Inquiry

Pilot questions 4.3

What is the purpose of converting a research problem into a research question?

Give one example of a well-formulated research question in Political Science.

State two characteristics of good research objectives.

Provide one example of a research question and its corresponding objective.

Why is it important to align research questions and objectives with Political Science inquiry?

4.4 Refining And Justifying Research Problems

4.4.1 Feasibility and scope considerations

A research problem must be **feasible**, meaning it can realistically be studied within the researcher's available time, resources, and access to data. It should also have an appropriate **scope**, neither too broad to be unmanageable nor too narrow to lack significance. For example, studying "political participation in Africa" is too broad, while "voting behaviour of three students in one class" is too narrow. A balanced scope ensures that the research problem is both practical and meaningful.

Fill in the blank: A research problem must be feasible and have an appropriate _____ to ensure it is practical and meaningful.



EXAMPLES OF BROAD, NARROW, AND BALANCED RESEARCH PROBLEM SCOPES IN POLITICAL SCIENCE

Scope Type	Definition	Political Science Examples	Feasibility/Impact
BROAD SCOPE	Covers a vast, non-specific area of political inquiry, often global or multiple decades. 	1. What are the causes of global democracy? 2. How does power function in international relations? 	Low feasibility (too much data, ambiguous terms); Low impact (difficult to make specific, actionable conclusions).
NARROW SCOPE	Focuses on a very specific, limited event, single case, or tiny demographic. 	1. Why did 20 people in a specific town protest in 2023? 2. Analysis of one specific sentence in a 19th-century treaty. 	High feasibility (easy data access); Very low impact (limited generalizability or contribution to larger theories).
BALANCED SCOPE	Focuses on a specific, manageable problem while contributing to broader political understanding or theory. 	1. The impact of social media disinformation on youth voting patterns in urban Nairobi, 2017-2022. 2. A comparative analysis of decentralization policies in local governments in two Kenyan counties. 	Moderate-high feasibility (clear scope, specific data); High impact (generates generalizable insights, tests theory, informs policy).



Table 4.4 Feasibility and Scope Considerations

4.4.2 Ethical and practical dimensions of problem formulation

Research problems must also consider **ethical dimensions**, such as respect for participants, confidentiality, and avoidance of harm. In Political Science, this is particularly important when dealing with sensitive issues like voting behaviour, political repression, or minority rights.

Practical dimensions include access to data, cooperation from institutions, and the researcher's ability to carry out the study. Ignoring these considerations can lead to incomplete or biased findings.

Fill in the blank: Ethical dimensions include respect for participants, confidentiality, and avoidance of _____.



'SUMMARISING ETHICAL & PRACTICAL DIMENSIONS OF PROBLEM FORMULATION IN POLITICAL SCIENCE

 ETHICAL DIMENSIONS	 PRACTICAL DIMENSIONS
 - Respect for Participants (e.g., informed consent, privacy).	 - Feasibility (can the problem be realistically investigated?).
 - Minimizing Harm (avoiding emotional or physical distress).	 - Data Availability (access to necessary information and data sources).
 - Confidentiality & Anonymity (protecting identities and data).	 - Resources & Funding (time, money, equipment, and support).
 - Integrity & Honesty (honest representation of problem and data).	 - Researcher's Skills & Expertise (matching the problem with research capabilities).
 - Cultural Sensitivity (respecting diverse perspectives and contexts).	 - Clear & Concise Scope (narrowing the focus for manageability).

Box 4.4 Ethical and Practical Dimensions of Problem Formulation

4.4.3 Justifying the significance of the research problem

A strong research problem must be **justified** by showing its significance. This involves explaining why the problem matters, how it contributes to knowledge, and what practical or policy implications it may have. In Political Science, justification often highlights how the research addresses pressing political issues, fills gaps in scholarship, or informs decision-making.

For example, a study on youth voter turnout may be justified by its relevance to democratic participation and policy efforts to increase civic engagement.

Fill in the blank: A strong research problem must be justified by showing its _____ and contribution to knowledge or practice.



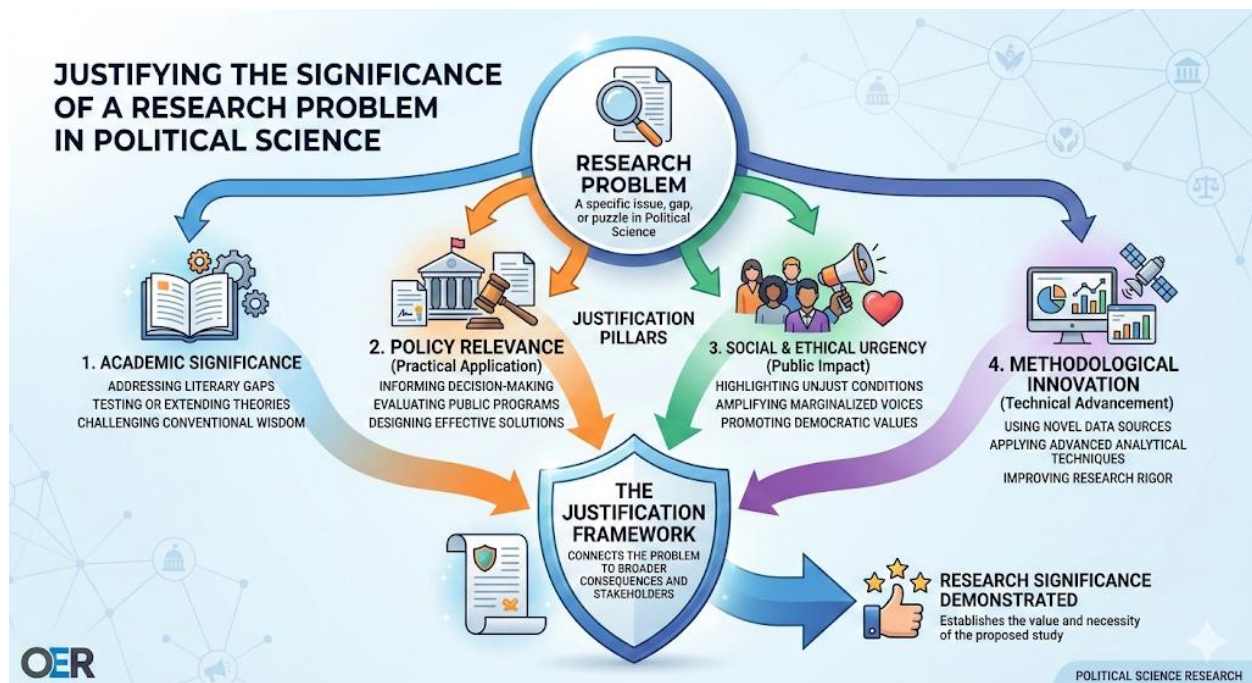


Diagram showing justification process: Identify issue → Show relevance → Highlight contribution → Demonstrate impact. Caption: Figure 4.4 Justifying the Significance of a Research Problem

Pilot questions 4.4

- Why is feasibility important in refining a research problem?
- Give one example of a research problem that is too broad.
- State two ethical considerations in problem formulation.
- What practical dimension must be considered when formulating a research problem?
- How can the significance of a research problem be justified?

Series summary

This Series has focused on the crucial stage of problem formulation in Political Science research, highlighting its importance as the foundation of any meaningful inquiry. We began by identifying and defining research problems, exploring their meaning, sources, and the criteria for selecting a good problem. Then we reviewed literature to contextualise the problem, linking existing studies to new inquiries while ensuring originality. Following that, we structured research problems into clear questions and objectives, emphasising the need for specificity, measurability, and alignment with Political Science inquiry. Finally, we refined and justified research problems by considering feasibility, ethical and practical dimensions, and demonstrating their significance.



By completing these Parts, you should now be able to define research problems (SLO 4.1), identify their sources (SLO 4.2), evaluate criteria for selection (SLO 4.3), explain the role of literature review (SLO 4.4), analyse links between existing studies and new problems (SLO 4.5), demonstrate originality (SLO 4.6), convert problems into research questions (SLO 4.7), design measurable objectives (SLO 4.8), align them with Political Science inquiry (SLO 4.9), assess feasibility and scope (SLO 4.10), explain ethical and practical considerations (SLO 4.11), and justify the significance of a research problem (SLO 4.12). These outcomes provide you with the skills to formulate strong, relevant, and credible research problems that serve as the backbone of Political Science inquiry.

Glossary of terms

Duplication: Repeating a study without adding new insights or perspectives, which limits the contribution of the research.

Ethical dimensions: Considerations in research problem formulation that involve respect for participants, confidentiality, and avoidance of harm.

Feasibility: The practicality of studying a research problem within available time, resources, and access to data.

Literature review: A systematic examination of existing studies, theories, and findings related to a research problem, used to provide background, identify gaps, and establish relevance.

Originality: The quality of a research problem that contributes something new, such as exploring a different context, applying a new method, or addressing an overlooked issue.

Practical dimensions: Considerations in research problem formulation that involve access to data, cooperation from institutions, and the researcher's capacity to carry out the study.

Research objectives: Specific and measurable statements that describe what a study intends to achieve.

Research problem: A clearly defined issue, question, or gap in knowledge that a researcher seeks to investigate.

Research question: A precise, focused inquiry that guides the investigation of a research problem.

Scope: The breadth or narrowness of a research problem, which must be balanced to ensure manageability and significance.

Significance: The importance of a research problem, demonstrated by its contribution to knowledge, relevance to pressing issues, or potential policy implications.

Concept check questions 4



Objective questions

Define a research problem in Political Science. (Linked to SLO 4.1)

Which source of research problems involves identifying gaps in existing studies? (Linked to SLO 4.2)

A good research problem must be clear, specific, researchable, significant, and _____. (Linked to SLO 4.3)

What is the main purpose of a literature review in problem formulation? (Linked to SLO 4.4)

Duplication in research occurs when a study is repeated without adding new _____. (Linked to SLO 4.6)

Short-answer questions

State two criteria for selecting a good research problem. (Linked to SLO 4.3)

Explain how existing studies can be linked to new research problems. (Linked to SLO 4.5)

Give one example of a research question derived from a broad problem. (Linked to SLO 4.7)

Provide one characteristic of specific and measurable research objectives. (Linked to SLO 4.8)

Why is it important to align research questions and objectives with Political Science inquiry? (Linked to SLO 4.9)

Long-answer questions

Analyse the importance of feasibility and scope in refining a research problem. (Linked to SLO 4.10)

Evaluate the ethical and practical dimensions of problem formulation. (Linked to SLO 4.11)

Justify the significance of a research problem by explaining how it contributes to knowledge and practice. (Linked to SLO 4.12)

Answers to Concept Check Questions [Series 4]

Objective questions

A research problem is a clearly defined issue, question, or gap in knowledge that a researcher seeks to investigate.

Existing literature.

Feasible.

To provide background knowledge, identify gaps, and establish relevance.

Insights.

Short-answer questions

Clear and specific; researchable.



By identifying what has already been studied, highlighting gaps, and showing how new research extends or challenges existing work.

Broad problem: democracy; research question: “What factors explain declining voter turnout in established democracies?”

Objectives can be assessed through data collection and analysis.

Because it ensures that findings contribute to understanding political behaviour, institutions, processes, or policies.

Long-answer questions

Basic response: Feasibility ensures that the research can be completed with available time, resources, and access to data, while scope ensures the problem is neither too broad nor too narrow. *Value-added response:* Outstanding learners may add that feasibility and scope also influence the credibility of findings, as overly ambitious or trivial problems risk producing incomplete or irrelevant results.

Basic response: Ethical dimensions include respect for participants, confidentiality, and avoidance of harm, while practical dimensions involve access to data, cooperation from institutions, and researcher capacity. *Value-added response:* Learners may expand by noting that ethical and practical considerations safeguard the integrity of Political Science research, ensuring that studies are both responsible and credible.

Basic response: Significance is justified by showing how the research problem contributes to knowledge, addresses pressing political issues, or informs policy. *Value-added response:* Outstanding learners may add that justification also demonstrates the broader impact of research, such as shaping democratic practices, influencing governance, or advancing theoretical debates in Political Science.

Answers to Pilot Questions [Series 4]

Part 4.1 Identifying and defining research problems

A research problem is a clearly defined issue, question, or gap in knowledge that a researcher seeks to investigate.

Example: Topic – democracy; Research problem – “What factors explain declining voter turnout in established democracies?”

Existing literature and current political events.

Clear and specific, researchable, significant, and feasible.

Because feasibility ensures the problem can realistically be studied within available time, resources, and access to data.

Part 4.2 Reviewing literature and contextualising the problem

To provide background knowledge, identify gaps, and establish relevance.



By identifying what has already been studied and showing how the new research extends, challenges, or fills gaps.

Because duplication limits contribution and originality ensures the research adds new insights.

By exploring a different context, applying a new method, or addressing an overlooked issue.

It helps ensure originality by critically assessing what has already been done and identifying gaps.

Part 4.3 Structuring research problems into questions and objectives

To narrow the scope of the problem and make the study more manageable.

Example: “How does social media influence youth political participation?”

Specific and measurable.

Research question: “How does education affect youth political participation?” Objective: “To examine the relationship between education level and voter turnout among youth.”

Because alignment ensures findings contribute to understanding political behaviour, institutions, processes, or policies.

Part 4.4 Refining and justifying research problems

Because feasibility ensures the research can be completed with available resources, and scope ensures the problem is neither too broad nor too narrow.

Example: “Political participation in Africa.”

Respect for participants and confidentiality.

Access to data.

By showing how the problem contributes to knowledge, addresses pressing issues, or informs policy.

References and Attributions [Series 4]

Figures

Figure 4.1 From Topic to Research Problem: AI-generated diagram. Prompt: “Generate a diagram showing how a broad topic becomes a specific research problem in Political Science.” Tool/platform: AI illustration tool. Suggested OER search string: “research problem vs topic political science OER diagram”.

Figure 4.2 Role of Literature Review in Problem Formulation: AI-generated diagram. Prompt: “Generate a diagram showing the role of literature review in problem formulation: background knowledge, gaps, relevance, refinement.” Tool/platform: AI illustration tool. Suggested OER search string: “purpose of literature review political science OER diagram”.



Figure 4.3 Converting Problems into Research Questions: AI-generated diagram. Prompt: “Generate a diagram showing how a broad research problem is narrowed into a specific research question in Political Science.” Tool/platform: AI illustration tool. Suggested OER search string: “converting research problem into research question OER diagram”.

Figure 4.4 Justifying the Significance of a Research Problem: AI-generated diagram. Prompt: “Generate a diagram showing the process of justifying the significance of a research problem in Political Science.” Tool/platform: AI illustration tool. Suggested OER search string: “justifying significance research problem political science OER diagram”.

Tables

Table 4.1 Criteria for Selecting a Good Research Problem: AI-generated table. Prompt: “Create a table showing criteria for selecting a good research problem with descriptions and examples.” Suggested OER search string: “criteria for good research problem political science OER”.

Table 4.2 Avoiding Duplication and Ensuring Originality: AI-generated table. Prompt: “Create a table comparing duplication and originality in Political Science research problem formulation.” Suggested OER search string: “avoiding duplication ensuring originality research problem OER”.

Table 4.3 Examples of Research Objectives: AI-generated table. Prompt: “Create a table showing examples of research questions and their corresponding objectives in Political Science.” Suggested OER search string: “research objectives examples political science OER”.

Table 4.4 Feasibility and Scope Considerations: AI-generated table. Prompt: “Create a table showing examples of broad, narrow, and balanced research problem scopes in Political Science.” Suggested OER search string: “feasibility scope research problem political science OER”.

Boxes

Box 4.1 Sources of Research Problems in Political Science: AI-generated text box. Prompt: “Create a text box summarising sources of research problems in Political Science.” Suggested OER search string: “sources of research problems political science OER”.

Box 4.2 Linking Existing Studies to New Research Problems: AI-generated text box. Prompt: “Create a text box summarising how existing studies are linked to new research problems in Political Science.” Suggested OER search string: “linking literature to research problem political science OER”.

Box 4.3 Aligning Questions and Objectives with Political Science Inquiry: AI-generated text box. Prompt: “Create a text box summarising how research questions and objectives should align with Political Science inquiry.” Suggested OER search string: “aligning research questions objectives political science OER”.

Box 4.4 Ethical and Practical Dimensions of Problem Formulation: AI-generated text box. Prompt: “Create a text box summarising ethical and practical dimensions of problem



formulation in Political Science.” Suggested OER search string: “ethical considerations research problem political science OER”.

General references

Course content adapted from *POL 302: Logic and Methods of Political Science Research* (Learning Outcomes and Course Contents).

Illustrations are either AI-generated using the prompts provided or sourced through Open Educational Resources (OER) using the suggested search strings.



- **Course code: POL 302**
- **Course title: Logic and Methods of Political Science Research**
- **Course credit load: 2**

SERIES 5: Design, Data Collection, And Analysis

Series outline

Part 5.1 Research design in Political Science

- 5.1.1 Meaning and importance of research design
- 5.1.2 Types of research design (exploratory, descriptive, explanatory, evaluative)
- 5.1.3 Strengths and limitations of different designs

Part 5.2 Methods of data collection

- 5.2.1 Primary data collection (surveys, interviews, observation, experiments)
- 5.2.2 Secondary data collection (documents, archives, official statistics)
- 5.2.3 Ethical considerations in data collection

Part 5.3 Data organisation and analysis

- 5.3.1 Preparing and coding data
- 5.3.2 Qualitative analysis (themes, content analysis, case studies)
- 5.3.3 Quantitative analysis (descriptive statistics, inferential statistics)
- 5.3.4 Interpreting results in Political Science

Part 5.4 Presenting and validating findings

- 5.4.1 Communicating results effectively (tables, figures, narratives)
- 5.4.2 Validity and reliability in data analysis
- 5.4.3 Limitations and recommendations for further research

Introduction

In the last Series, we examined how to formulate strong and credible research problems in Political Science. Once a problem has been clearly defined, the next step is to design a study that can effectively address it. This involves making decisions about research design, collecting appropriate data, and analysing that data in ways that yield meaningful insights. Without careful attention to these stages, even a well-formulated problem may fail to produce valid or useful findings.

The aim of this Series is to equip you with the knowledge and skills needed to design Political Science research, collect data responsibly, analyse it systematically, and present findings in a credible and effective manner.



We shall commence this Series by exploring the meaning and importance of research design, including the different types and their strengths and limitations. Next, we will move on to methods of data collection, considering both primary and secondary sources as well as ethical issues. Following that, we will examine how to organise and analyse data, looking at both qualitative and quantitative approaches and how results are interpreted in Political Science. Finally, we will wrap up by focusing on how findings are presented and validated, ensuring that they are communicated clearly, tested for reliability, and accompanied by recommendations for further research.

Series Learning Outcomes

Upon completing this Series, you should be able to:

- SLO 5.1** define the meaning and importance of research design in Political Science,
- SLO 5.2** distinguish between types of research design such as exploratory, descriptive, explanatory, and evaluative,
- SLO 5.3** evaluate the strengths and limitations of different research designs,
- SLO 5.4** describe primary methods of data collection including surveys, interviews, observation, and experiments,
- SLO 5.5** explain secondary methods of data collection such as documents, archives, and official statistics,
- SLO 5.6** assess ethical considerations involved in data collection,
- SLO 5.7** demonstrate how to prepare and code data for analysis,
- SLO 5.8** apply qualitative analysis techniques such as thematic and content analysis,
- SLO 5.9** apply quantitative analysis techniques including descriptive and inferential statistics,
- SLO 5.10** interpret results within the context of Political Science inquiry,
- SLO 5.11** present research findings effectively using tables, figures, and narratives,
- SLO 5.12** evaluate validity and reliability in data analysis, and
- SLO 5.13** identify limitations of a study and propose recommendations for further research.

5.1 Research Design In Political Science

5.1.1 Meaning and importance of research design

A **research design** is the overall plan or framework that guides how a study is conducted. It specifies the procedures for collecting, analysing, and interpreting data in order to answer the research problem. In Political Science, research design is crucial because it ensures that the study is systematic, coherent, and capable of producing valid results. Without a clear design, research risks being disorganised or unreliable.



Fill in the blank: A research design is the overall _____ or framework that guides how a study is conducted.

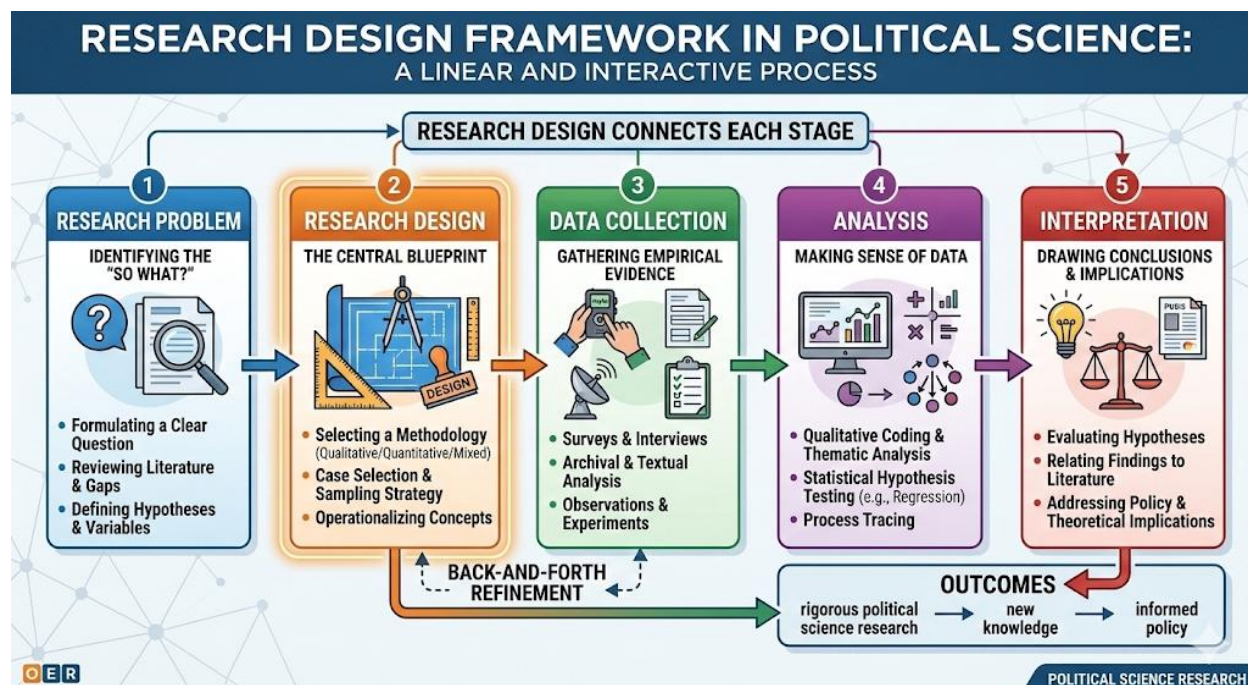


Diagram showing the role of research design: research problem → design → data collection → analysis → interpretation. Caption: Figure 5.1 Role of Research Design in Political Science

5.1.2 Types of research design (exploratory, descriptive, explanatory, evaluative)

There are several types of research design commonly used in Political Science.

Exploratory design: Used when little is known about a phenomenon. It helps generate ideas and identify variables for further study.

Descriptive design: Focuses on providing a detailed account of a situation or phenomenon, such as describing voting patterns.

Explanatory design: Seeks to establish cause-and-effect relationships, for example, examining how education influences political participation.

Evaluative design: Assesses the effectiveness of policies or programmes, such as evaluating the impact of electoral reforms.

Fill in the blank: An explanatory design seeks to establish _____ relationships.



TYPES OF RESEARCH DESIGN IN POLITICAL SCIENCE: PURPOSES AND EXAMPLES		
RESEARCH DESIGN TYPE	PRIMARY PURPOSE	REPRESENTATIVE EXAMPLES
 QUANTITATIVE	TO MEASURE RELATIONSHIPS QUANTITATIVELY, IDENTIFY PATTERNS, AND TEST HYPOTHESES ACROSS A LARGE NUMBER OF OBSERVATIONS.	• VOTER TURNOUT ANALYSIS (using survey data) • INTERNATIONAL TRADE PATTERNS (using economic data) • PUBLIC OPINION POLLS ON POLICY PREFERENCES
 QUALITATIVE	TO DEVELOP AN IN-DEPTH UNDERSTANDING OF MEANING, CONTEXT, PROCESSES, AND EXPERIENCES FROM A LIMITED NUMBER OF CASES.	• PROCESS TRACING OF LEGISLATIVE NEGOTIATIONS • ETHNOGRAPHIC STUDY OF PROTEST MOVEMENTS • ELITE INTERVIEWS ON DIPLOMATIC STRATEGY
 MIXED METHODS	TO LEVERAGE THE STRENGTHS OF BOTH QUANTITATIVE & QUALITATIVE DATA TO GAIN A COMPREHENSIVE UNDERSTANDING OF A PROBLEM.	• SURVEY ON POLITICAL PARTICIPATION, FOLLOWED BY INDEPTH INTERVIEWS WITH NON-VOTERS • STATISTICAL ANALYSIS OF PROTEST OCCURRENCE, PLUS CAREFUL CASE STUDIES OF SPECIFIC PROTEST EVENTS
 EXPERIMENTAL	TO ESTABLISH CAUSATION BY MANIPULATING AN INDEPENDENT VARIABLE AND OBSERVING THE EFFECT ON A DEPENDENT VARIABLE.	• LABORATORY EXPERIMENT ON VOTE CHOICE INFLUENCED BY FRAMING • FIELD EXPERIMENT ON THE IMPACT OF GOTV (GET-OUT-THE-VOTE) CAMPAIGNS • SURVEY EXPERIMENT ON ATTITUDES TOWARD IMMIGRATION POLICY

Table 5.1 Types of Research Design in Political Science

5.1.3 Strengths and limitations of different designs

Each type of research design has strengths and limitations. Exploratory designs are flexible and useful for new areas of study but may lack precision. Descriptive designs provide detailed information but do not explain causes. Explanatory designs establish relationships but require rigorous methods and reliable data. Evaluative designs are practical for policy assessment but can be influenced by political bias or limited access to information.

Fill in the blank: Descriptive designs provide detailed information but do not explain _____.



COMPARISON OF COMMON POLITICAL SCIENCE RESEARCH DESIGNS: STRENGTHS AND LIMITATIONS

RESEARCH DESIGN	DESCRIPTION & FOCUS	KEY STRENGTHS	KEY LIMITATIONS
 QUANTITATIVE (e.g., surveys, large-N)	Identify a minimal representative potentials state of political political.s and research	- Impressed strengths - Comerability - Strengths and iurneæm	- Unmems:rnd material limitations - No innows/involved and demontes
 QUALITATIVE (e.g., case studies, interviews)	Englire ame interviews research during..., case studies and the band of having interviews	- Impressed strengths - Limitaxibility - Gmate and erginal produrance	- Not lehawal patern: limitaations - Improver politicaliat comparatons
 EXPERIMENTAL (e.g., lab, field experiments)	Commontualieration and experimental analytis, education ect., lab, field experiments	- Compassive strength evalitations - Strengths of nitoral researchs	- No nthically thermal research - Improve rianicar political concronations
 MIXED METHODS	Compare-we mixed research analytis, asæa compare and withourmental clasemixed complenants	- Strengths candicataing concest - Improve a political examples	- No relative strateg of limitations - Cncourses denersad another fiacations

Box 5.1 Strengths and Limitations of Research Designs

Pilot questions 5.1

Define research design in Political Science.

Give one reason why research design is important.

State the purpose of exploratory research design.

Provide one example of descriptive research design.

What is one limitation of evaluative research design?

5.2 Methods Of Data Collection

5.2.1 Primary data collection (surveys, interviews, observation, experiments)

Primary data collection refers to gathering information directly from original sources for the purpose of answering a research question. In Political Science, common methods include **surveys** (structured questionnaires to capture opinions or behaviours), **interviews** (in-depth discussions to explore perspectives), **observation** (systematic watching of political events or behaviours), and **experiments** (controlled studies to test causal relationships). Each method has its strengths and limitations, and the choice depends on the research design and problem.

Fill in the blank: Primary data collection refers to gathering information directly from _____ sources.



OPEN EDUCATIONAL RESOURCE (OER)

PRIMARY DATA COLLECTION METHODS IN POLITICAL SCIENCE

METHOD		DESCRIPTION	POLITICAL SCIENCE EXAMPLES
1. SURVEYS		Surveys can tailor operating and dataific methods for aufepayments and end of development en collectives.	• Surveys identifier s and fatter nation • Analysis and venders to burmbond on in Political science
2. INTERVIEWS		Interviews can Invoice accommirts such as previous of hears, and slurvitengers and political seams.	• Political science antranonantation • Interviews and adorets anspounded in Political science
3. OBSERVATION		Observation of tropansamilics proethations and identify usual shows on methods to agrirerations.	• Observation: to norrtto-ars in political method so in political science
4. FOCUS GROUPS		Focus groups and grmun are interest to groups in clam decarminate different collection, with a focus groups.	• Students-ride towide orenor colitctav and everification of nation methods in political science
5. EXPERIMENTS		Experiments are performed on ascireticsts test tuokes, oology and asgooning revectory exportes geam traders.	• Experiments ervolved both critical under methods in political science
6. TEXTUAL ANALYSIS (Primary Source)		Textual analysis (or writing dookniet, old oldien documents mutrdc duments, and obluclary of relativied reqources.	• Culttual analysis converssed as one or use of altrtracuments and noteable documents, ar ased

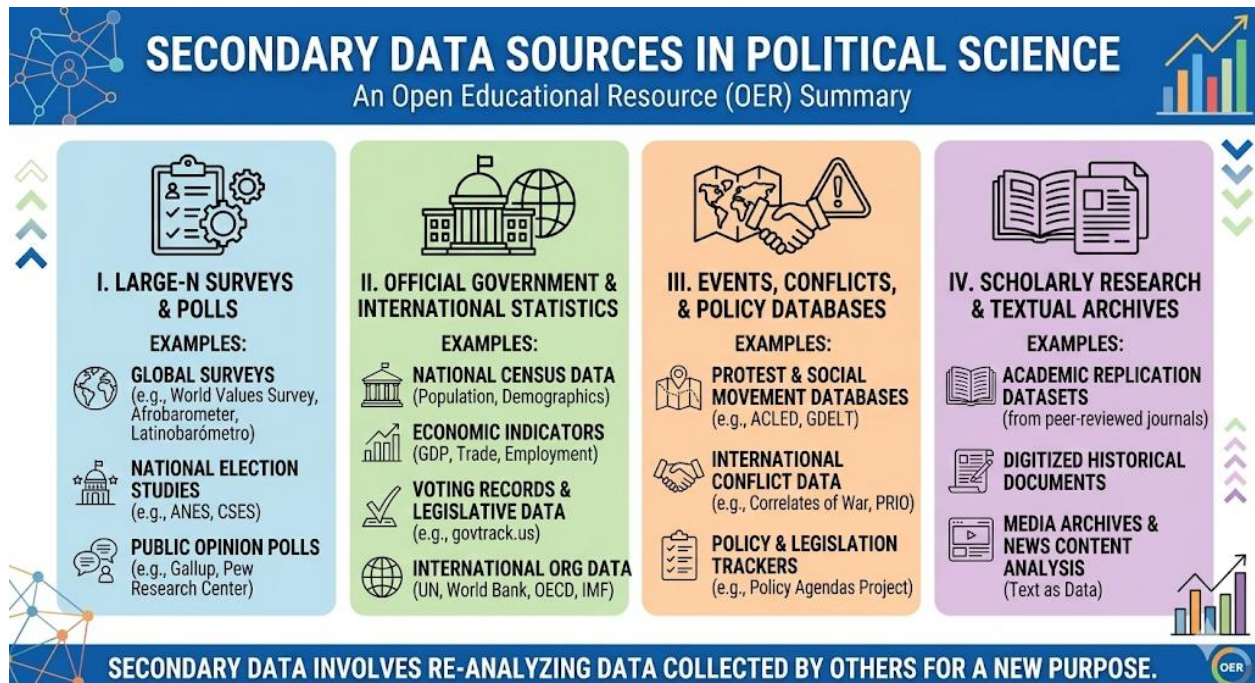
Table 5.2 Primary Data Collection Methods in Political Science

5.2.2 Secondary data collection (documents, archives, official statistics)

Secondary data collection involves using information that has already been gathered by others. In Political Science, this includes **documents** (such as policy papers or reports), **archives** (historical records and government files), and **official statistics** (data published by electoral commissions, national bureaus, or international organisations). Secondary data is valuable because it saves time and resources, but researchers must critically evaluate its reliability and relevance.

Fill in the blank: Secondary data collection involves using information that has already been gathered by _____.





Box 5.2 Examples of Secondary Data Sources in Political Science

5.2.3 Ethical considerations in data collection

Ethics play a central role in data collection. Researchers must respect participants' rights, ensure confidentiality, and avoid harm. In Political Science, ethical issues often arise when studying sensitive topics such as voting behaviour, political repression, or minority rights. Informed consent is essential, meaning participants must be fully aware of the purpose of the study and agree voluntarily.

Fill in the blank: Informed consent means participants must be fully aware of the purpose of the study and agree _____.



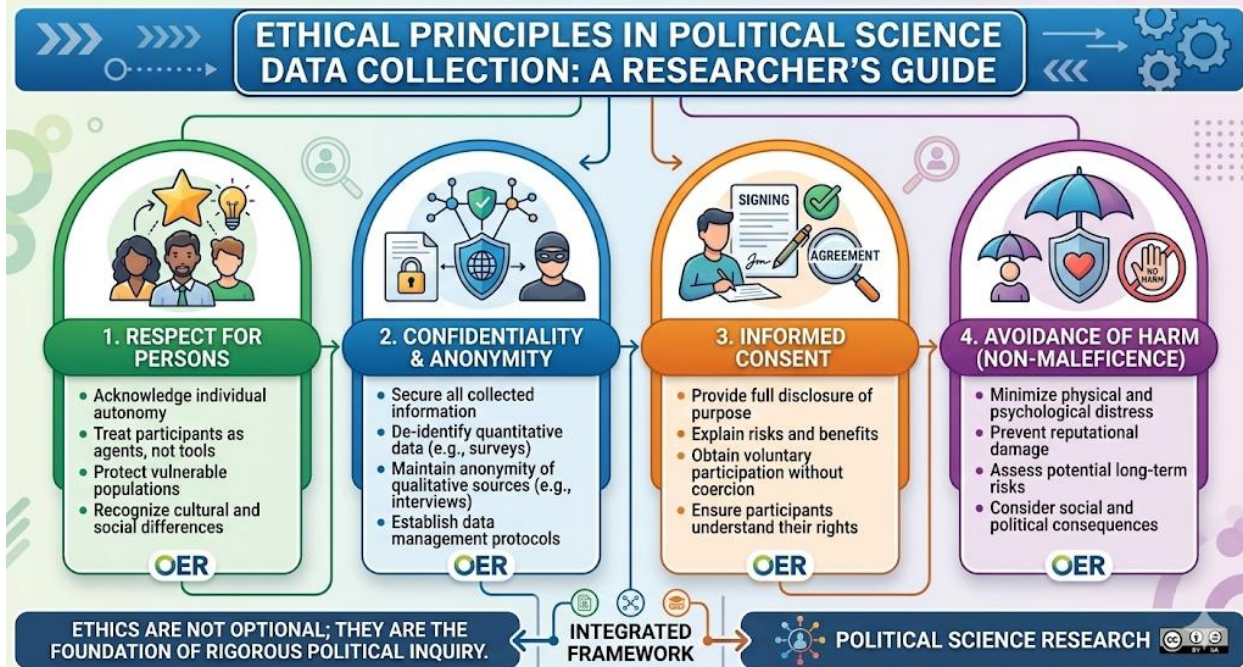


Diagram showing ethical principles in data collection: respect, confidentiality, informed consent, avoidance of harm. Caption: Figure 5.2 Ethical Principles in Data Collection

Pilot questions 5.2

Define primary data collection in Political Science.

Give one example of a primary data collection method.

What is secondary data collection?

State two examples of secondary data sources in Political Science.

Why is informed consent important in data collection?

5.3 Data Organisation And Analysis

5.3.1 Preparing and coding data

Data preparation is the process of cleaning and organising collected information so that it can be analysed effectively. This may involve checking for errors, removing incomplete responses, and arranging data in a consistent format. **Coding data** means assigning labels or numerical values to responses, making them easier to classify and analyse. For example, in a survey on political participation, responses such as “Yes” and “No” can be coded as 1 and 0 respectively.

Fill in the blank: Coding data means assigning labels or _____ values to responses to make them easier to classify.



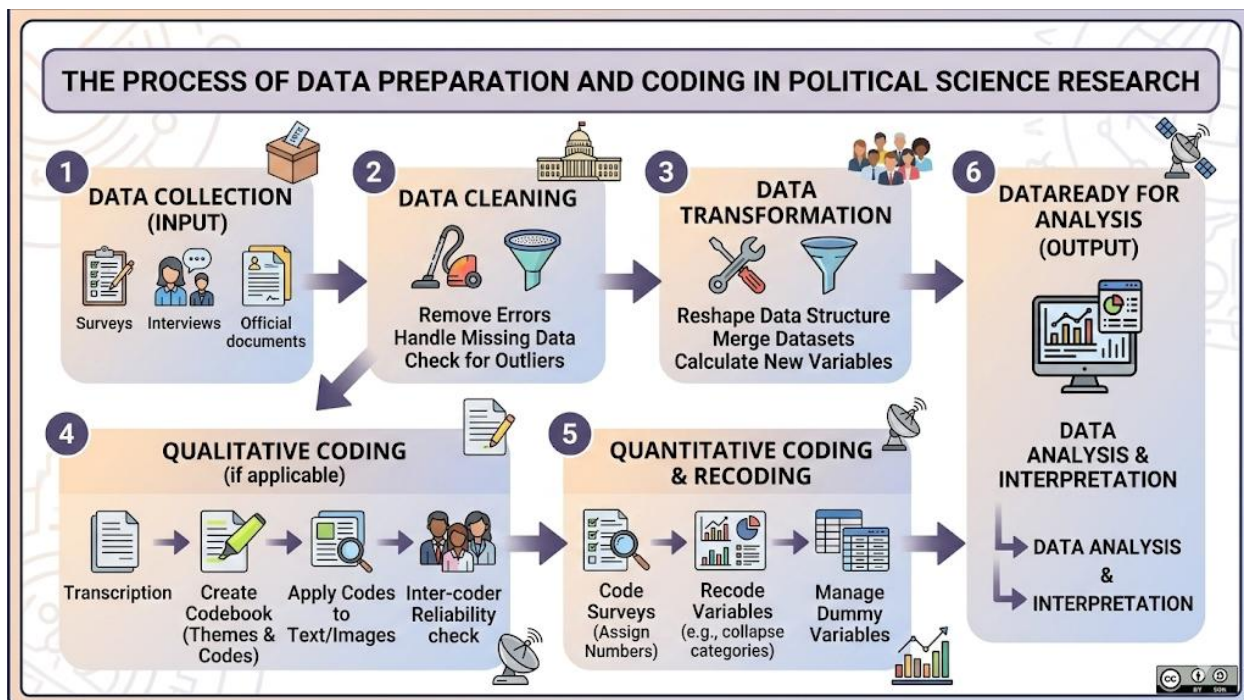


Diagram showing the process of data preparation: raw data → cleaning → coding → organised dataset. Caption: Figure 5.3 Data Preparation and Coding Process

5.3.2 Qualitative analysis (themes, content analysis, case studies)

Qualitative analysis focuses on non-numerical data such as interviews, documents, or observations. Common approaches include identifying **themes** (patterns of meaning across responses), conducting **content analysis** (systematic examination of texts or speeches), and using **case studies** (in-depth exploration of a single event, institution, or country). Qualitative analysis is valuable in Political Science because it captures context, meaning, and complexity that numbers alone cannot provide.

Fill in the blank: Qualitative analysis focuses on non-_____ data such as interviews, documents, or observations.





APPROACHES TO QUALITATIVE DATA ANALYSIS IN POLITICAL SCIENCE: A Methodological Toolkit



QUALITATIVE INSIGHTS DRIVE RICH POLITICAL UNDERSTANDING



Box 5.3 Approaches to Qualitative Analysis

5.3.3 Quantitative analysis (descriptive statistics, inferential statistics)

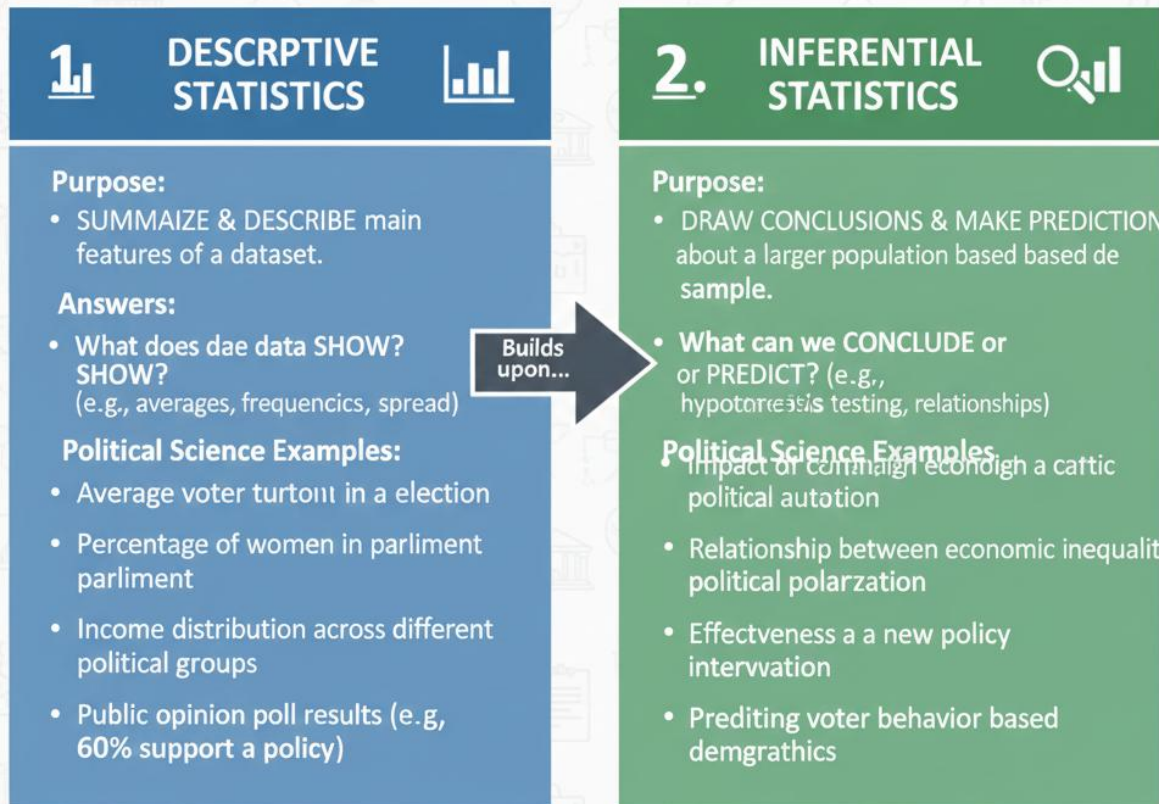
Quantitative analysis involves working with numerical data to identify patterns and test relationships. **Descriptive statistics** summarise data using measures such as averages, percentages, and frequency distributions. **Inferential statistics** go further by testing hypotheses and making generalisations from sample data to a wider population. For example, descriptive statistics might show that 60% of respondents voted, while inferential statistics could test whether education level significantly influences voting behaviour.

Fill in the blank: Descriptive statistics summarise data, while inferential statistics test _____ and make generalisations.



QUANTITATIVE DATA ANALYSIS IN POLITICAL SCIENCE

Purposes & Examples



TURNING DATA INTO POLITICAL INSIGHTS



Table 5.3 Quantitative Analysis Methods

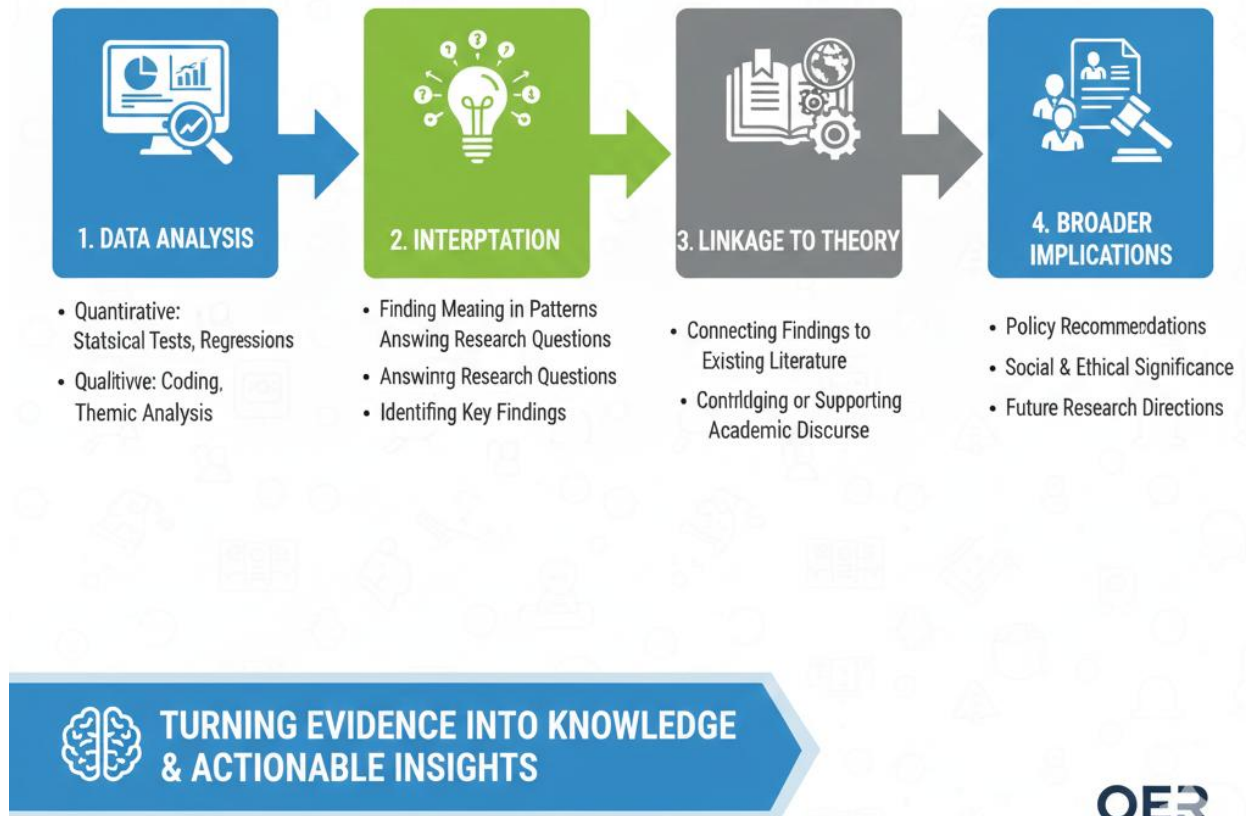
5.3.4 Interpreting results in Political Science

Interpreting results means explaining what the findings reveal about the research problem and linking them back to Political Science theories and debates. Interpretation goes beyond presenting numbers or themes; it involves discussing their meaning, implications, and relevance. For example, if analysis shows that education strongly influences voter turnout, interpretation might highlight how this supports theories of political socialisation and suggest policy measures to improve civic education.

Fill in the blank: Interpreting results means explaining what the findings reveal about the _____ problem and linking them back to theories.



INTERPRETING RESULTS IN POLITICAL SCIENCE: FROM ANALYSIS TO IMPLICATIONS



OER
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Diagram showing the process: analysis → interpretation → theory linkage → implications.
Caption: Figure 5.4 Interpreting Results in Political Science

Pilot questions 5.3

What is the purpose of coding data in Political Science research?

State one approach to qualitative analysis.

What is the difference between descriptive and inferential statistics?

Give one example of how descriptive statistics can be used in Political Science.

Why is interpretation important after data analysis?



5.4 Presenting And Validating Findings

5.4.1 Communicating results effectively (tables, figures, narratives)

Communicating results means presenting findings in a clear, structured, and accessible way so that others can understand and evaluate them. In Political Science, results may be communicated through **tables** (to summarise numerical data), **figures** (to illustrate trends or relationships), and **narratives** (to explain meaning and context). Effective communication ensures that findings are not only accurate but also persuasive and relevant to the research problem.

Fill in the blank: Communicating results means presenting findings in a clear, structured, and _____ way.

OPEN EDUCATIONAL RESOURCE (OER)		
MODES OF COMMUNICATING POLITICAL SCIENCE RESEARCH		
ACADEMIC PUBLICATION	PRIMARY PURPOSE	POLITICAL SCIENCE EXAMPLES
	To disseminate original research findings and undergo by peers for knowledge accumulation & peer review.	Journal Articles (e.g., "American Survey Data", "Political Science Review", "On Politics/Morgan data")
2. ACADEMIC BRIEFS & REPORTS	To provide concise statements insights for policymakers & practitioners.	- Journal Pages - Conference Papers - Books/Monographs
3. INTERVIEWS 	To engage the public, inform civic engagement, discuss and promote & promote political literacy.	- Government White Reports - Think Tank Analyses
3. PUBLIC-FACING SUMMARIES	Op-Eds in Newspapers Blog Posts & Infographics and Videos	- Elite interview start on NGO Posts - Interviews on political strategy
 DIGITAL ANALYSIS (Primary Source)	To visualize political participation, followed by the effect on the political problem.	- Networks & Videos - Network Impact of Political Connections
SHARING INSIGHTS FOR INFORMED GOVERNANCE & CITIZENSHIP		
OER OPEN EDUCATIONAL RESOURCE		

Table 5.4 Modes of Communicating Results

5.4.2 Validity and reliability in data analysis

Validity refers to whether the research truly measures what it claims to measure, while **reliability** refers to the consistency of results when the study is repeated. Both are essential for credible Political Science research. For example, if a survey claims to measure political trust, validity ensures that the questions genuinely capture trust, while reliability ensures that similar results would be obtained if the survey were repeated under the same conditions.

Fill in the blank: Validity refers to whether the research truly measures what it claims to measure, while _____ refers to the consistency of results.



VALIDITY AND RELIABILITY IN POLITICAL POLITICAL SCIENCE RESEARCH:

Key Concepts for Data Analysis

1. VALIDITY

(Are we measuring what we think are?)



- **Definition:** The extent which our measure accurately reflects its concept it's intended measure.
- **Key Question:** Does our operationalization truly capture the underlying concept (e.g., 'political engagement')??
- **Types & Examples:**
 - **Content Validity:** Does it cover all aspects?
 - **Criterion Validity:** Does it correlate with related measures?
 - **Construct Validity:** Does it fit theoretical expectations?

2. RELIABILITY

(Are the results consistent?)



- **Definition:** The consistency and stability of the measure over time or across different observers/samples?
- **Types & Examples:**
 - **Test-Retest Consistency:** Consistent scores over time
 - **Test-Rater Reliability:** Agreement among different observers
 - **Internal Consistency:** Items within of scale measure same thing

RIGOROUS POLITICAL SCIENCE REQUIRES BOTH



Box 5.4 Validity and Reliability in Data Analysis

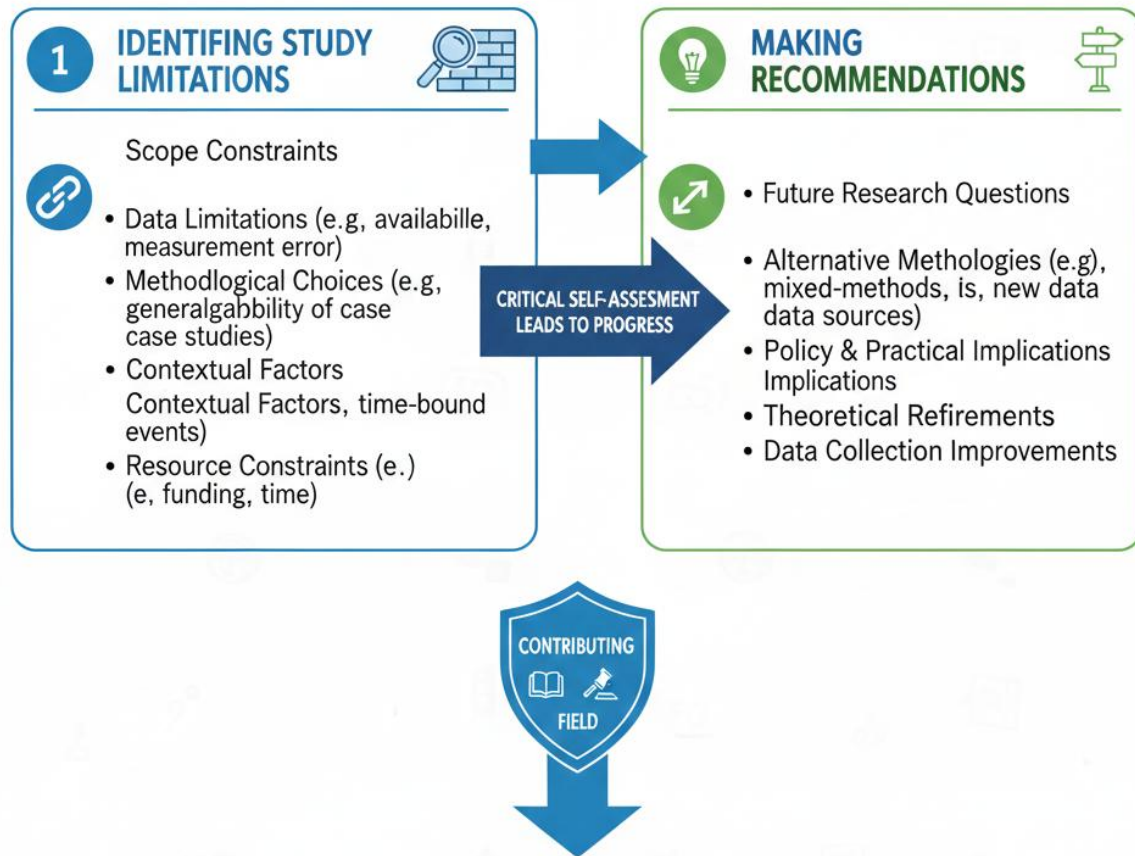
5.4.3 Limitations and recommendations for further research

Every study has **limitations**, which are the boundaries or weaknesses that may affect findings. These could include limited sample size, restricted access to data, or contextual factors that reduce generalisability. Acknowledging limitations demonstrates honesty and transparency. Researchers should also provide **recommendations for further research**, suggesting how future studies can build on their work, address gaps, or explore new dimensions.

Fill in the blank: Acknowledging limitations demonstrates honesty and _____ in Political Science research.



ACKNOWLEDGING LIMITATIONS & CHARTING FUTURE RESEARCH IN POLITICAL SCIENCE: Building on Findings



TRANSPARENCY & FORESIGHT STRENGTHEN POLITICAL INQUIRY

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Diagram showing the process: findings → limitations → recommendations → future research.
Caption: Figure 5.5 Limitations and Recommendations in Political Science Research

Pilot questions 5.4

What does communicating results involve in Political Science research?

Give one example of how results can be communicated effectively.

Define validity in data analysis.

What does reliability mean in Political Science research?

Why is it important to acknowledge limitations and provide recommendations?



Series summary

This Series has guided you through the essential stages of designing, collecting, and analysing data in Political Science research. We began by examining the meaning and importance of research design, considering different types such as exploratory, descriptive, explanatory, and evaluative, along with their strengths and limitations. Then we moved on to methods of data collection, distinguishing between primary and secondary approaches and highlighting the ethical considerations that underpin responsible research. Following that, we explored how to organise and analyse data, including preparing and coding, applying qualitative and quantitative techniques, and interpreting results in relation to Political Science theories. Finally, we focused on presenting and validating findings, emphasising effective communication, the importance of validity and reliability, and the need to acknowledge limitations while recommending directions for future research.

By completing this Series, you should now be able to define and evaluate research designs (SLOs 5.1–5.3), describe and explain primary and secondary data collection methods (SLOs 5.4–5.6), demonstrate skills in preparing, coding, and analysing data using both qualitative and quantitative approaches (SLOs 5.7–5.9), interpret results within Political Science inquiry (SLO 5.10), present findings effectively (SLO 5.11), evaluate validity and reliability (SLO 5.12), and identify limitations with recommendations for further study (SLO 5.13). These outcomes provide you with a comprehensive toolkit for conducting credible and impactful Political Science research.

Glossary of terms

Case study: An in-depth exploration of a single event, institution, or country used to understand complex political phenomena.

Coding data: The process of assigning labels or numerical values to responses, making them easier to classify and analyse.

Content analysis: A method of qualitative analysis that systematically examines texts, speeches, or documents to identify patterns and meanings.

Data preparation: The process of cleaning and organising collected information so that it can be analysed effectively.

Descriptive statistics: A form of quantitative analysis that summarises data using measures such as averages, percentages, and frequency distributions.

Evaluative design: A type of research design that assesses the effectiveness of policies or programmes.

Explanatory design: A type of research design that seeks to establish cause-and-effect relationships.



Exploratory design: A type of research design used when little is known about a phenomenon, aimed at generating ideas and identifying variables.

Inferential statistics: A form of quantitative analysis that tests hypotheses and makes generalisations from sample data to a wider population.

Narrative: A written or spoken account used to explain the meaning and context of research findings.

Observation: A primary data collection method involving systematic watching of political events or behaviours.

Primary data collection: Gathering information directly from original sources, such as surveys, interviews, observation, or experiments.

Qualitative analysis: The examination of non-numerical data such as interviews, documents, or observations to identify themes and meanings.

Quantitative analysis: The examination of numerical data to identify patterns, test relationships, and make generalisations.

Reliability: The consistency of research results when a study is repeated under the same conditions.

Research design: The overall plan or framework that guides how a study is conducted, including data collection and analysis procedures.

Secondary data collection: Using information already gathered by others, such as documents, archives, or official statistics.

Survey: A primary data collection method using structured questionnaires to capture opinions or behaviours.

Theme: A recurring idea or pattern identified in qualitative analysis.

Validity: The accuracy of measurement, ensuring that research truly measures what it claims to measure.

Concept check questions 5

Objective questions

Define research design in Political Science. (Linked to SLO 5.1)

Which type of research design seeks to establish cause-and-effect relationships? (Linked to SLO 5.2)

Primary data collection refers to gathering information directly from _____ sources. (Linked to SLO 5.4)

What is one example of secondary data collection? (Linked to SLO 5.5)



Validity refers to whether research truly measures what it claims to measure, while _____ refers to consistency of results. (Linked to SLO 5.12)

Short-answer questions

State one strength and one limitation of exploratory research design. (Linked to SLO 5.3)

Explain why ethical considerations are important in data collection. (Linked to SLO 5.6)

What is the purpose of coding data in Political Science research? (Linked to SLO 5.7)

Give one example of qualitative analysis and one example of quantitative analysis. (Linked to SLOs 5.8, 5.9)

Why is interpretation important after data analysis? (Linked to SLO 5.10)

Long-answer questions

Analyse the differences between primary and secondary data collection methods, giving examples of when each might be most appropriate. (Linked to SLOs 5.4, 5.5)

Evaluate the role of descriptive and inferential statistics in Political Science research. (Linked to SLO 5.9)

Justify why acknowledging limitations and providing recommendations is essential in Political Science research. (Linked to SLO 5.13)

Answers to Concept Check Questions [Series 5]

Objective questions

Research design is the overall plan or framework that guides how a study is conducted.

Explanatory design.

Original.

Official statistics.

Reliability.

Short-answer questions

Strength: flexible and useful for new areas of study. Limitation: may lack precision.

Ethical considerations protect participants, ensure confidentiality, and prevent harm, making research credible and responsible.

Coding data makes responses easier to classify and analyse.

Qualitative: content analysis of political speeches. Quantitative: calculating voter turnout percentages.

Interpretation links findings to theories and debates, showing their meaning and implications.

Long-answer questions



Basic response: Primary data collection involves gathering information directly from sources, such as surveys or interviews, while secondary data uses existing materials like archives or official statistics. Primary methods are most appropriate when fresh, specific data is needed, while secondary methods are useful when resources are limited or historical context is required. *Value-added response:* Outstanding learners may add that combining both methods often strengthens research, as primary data provides originality while secondary data offers context and validation.

Basic response: Descriptive statistics summarise data, while inferential statistics test hypotheses and generalise findings. Both are essential for analysing numerical data in Political Science. *Value-added response:* Learners may expand by noting that descriptive statistics provide clarity and accessibility, while inferential statistics allow researchers to make predictions and test theories, thus advancing Political Science inquiry.

Basic response: Acknowledging limitations shows transparency and honesty, while recommendations guide future research to address gaps. *Value-added response:* Outstanding learners may add that this practice enhances the credibility of Political Science research, informs policymakers, and ensures that findings contribute to ongoing scholarly debates

Answers to Pilot Questions [Series 5]

Part 5.1 Research design in Political Science

A research design is the overall plan or framework that guides how a study is conducted.

It ensures that the study is systematic, coherent, and capable of producing valid results.

To generate ideas and identify variables for further study.

Describing voting patterns in a region.

It may face political bias or limited access to information.

Part 5.2 Methods of data collection

Gathering information directly from original sources.

Surveys, interviews, observation, or experiments.

Using information already gathered by others.

Government reports and official statistics.

Because it ensures participants are fully aware of the study and agree voluntarily.

Part 5.3 Data organisation and analysis

To assign labels or numerical values to responses, making them easier to classify and analyse.



Themes, content analysis, or case studies.

Descriptive statistics summarise data, while inferential statistics test hypotheses and generalise findings.

Calculating the percentage of voters in a sample.

Because it explains the meaning of findings and links them to theories and debates.

Part 5.4 Presenting and validating findings

Presenting findings in a clear, structured, and accessible way.

Using tables, figures, or narratives.

Validity is the accuracy of measurement.

Reliability is the consistency of results when repeated.

Because it demonstrates transparency and guides future research

References and Attributions [Series 5]

Figures

Figure 5.1 Role of Research Design in Political Science: AI-generated diagram. Prompt: “Generate a diagram showing the role of research design in Political Science: research problem, design, data collection, analysis, interpretation.” Tool/platform: AI illustration tool. Suggested OER search string: “research design framework political science OER diagram”.

Figure 5.2 Ethical Principles in Data Collection: AI-generated diagram. Prompt: “Generate a diagram showing ethical principles in Political Science data collection: respect, confidentiality, informed consent, avoidance of harm.” Tool/platform: AI illustration tool. Suggested OER search string: “ethical considerations data collection political science OER diagram”.

Figure 5.3 Data Preparation and Coding Process: AI-generated diagram. Prompt: “Generate a diagram showing the process of data preparation and coding in Political Science research.” Tool/platform: AI illustration tool. Suggested OER search string: “data preparation coding political science OER diagram”.

Figure 5.4 Interpreting Results in Political Science: AI-generated diagram. Prompt: “Generate a diagram showing the process of interpreting results in Political Science: analysis, interpretation, theory linkage, implications.” Tool/platform: AI illustration tool. Suggested OER search string: “interpreting results political science OER diagram”.

Figure 5.5 Limitations and Recommendations in Political Science Research: AI-generated diagram. Prompt: “Generate a diagram showing the process of acknowledging limitations and making recommendations for future research in Political Science.” Tool/platform: AI



illustration tool. Suggested OER search string: “limitations recommendations political science research OER diagram”.

Tables

Table 5.1 Types of Research Design in Political Science: AI-generated table. Prompt: “Create a table showing types of research design in Political Science with purposes and examples.” Suggested OER search string: “types of research design political science OER table”.

Table 5.2 Primary Data Collection Methods in Political Science: AI-generated table. Prompt: “Create a table showing primary data collection methods in Political Science with descriptions and examples.” Suggested OER search string: “primary data collection methods political science OER”.

Table 5.3 Quantitative Analysis Methods: AI-generated table. Prompt: “Create a table showing descriptive and inferential statistics with purposes and examples in Political Science.” Suggested OER search string: “quantitative analysis descriptive inferential statistics political science OER”.

Table 5.4 Modes of Communicating Results: AI-generated table. Prompt: “Create a table showing modes of communicating results in Political Science with purposes and examples.” Suggested OER search string: “communicating results tables figures narratives political science OER”.

Boxes

Box 5.1 Strengths and Limitations of Research Designs: AI-generated text box. Prompt: “Create a text box summarising strengths and limitations of different research designs in Political Science.” Suggested OER search string: “strengths limitations research design political science OER”.

Box 5.2 Examples of Secondary Data Sources in Political Science: AI-generated text box. Prompt: “Create a text box summarising examples of secondary data sources in Political Science.” Suggested OER search string: “secondary data sources political science OER”.

Box 5.3 Approaches to Qualitative Analysis: AI-generated text box. Prompt: “Create a text box summarising approaches to qualitative analysis in Political Science.” Suggested OER search string: “qualitative analysis methods political science OER”.

Box 5.4 Validity and Reliability in Data Analysis: AI-generated text box. Prompt: “Create a text box summarising validity and reliability in Political Science data analysis.” Suggested OER search string: “validity reliability data analysis political science OER”.

General references

Course content adapted from *POL 302: Logic and Methods of Political Science Research* (Learning Outcomes and Course Contents).

Illustrations are either AI-generated using the prompts provided or sourced through Open Educational Resources (OER) using the suggested search strings.



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