# POLICY RESEARCH METHODS

A Step-by-Step Guide from Start to Finish for Students and Practitioners

Faheem Jehangir Khan

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RASTA

PIDE

Research for Social Transformation & Advancement
Pakistan Institute of Development Economics, Islamabad

Book reviewed by Professor Murtaza Haider (Toronto Metropolitan University, Canada)

November 2022

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ABOUT THE AUTHOR

Dr Faheem Jehangir Khan is a public policy expert with almost two decades of experience in research and policy analysis, practitioners' training, and teaching at the university level. His areas of expertise include network governance and public sector management with a special interest in public policy processes, policy formulation and management, and evaluation of public sector (development) projects. He also has a keen research interest in foreign aid, city profiling, and training & development. He delivers lectures on research methods and conducts workshops on data visualisation and effective communication & presentation skills at various training institutes for mid-career and senior management-level officers (practitioners) across Pakistan.

He is a Senior Research Economist at the Pakistan Institute of Development Economics (PIDE), Islamabad and currently leading the *'Research for Social Transformation & Advancement'* (RASTA) programme for policy-oriented research – the largest economics and public policy research grants programme in Pakistan – as the Project Director. He remained associated with the National School of Public Policy (NSPP) at the National Institute of Management (NIM), Islamabad, and worked for UNDP, GIZ, and ILO on different research projects.

He obtained his PhD (Public Policy) from the School for Policy Studies, University of Bristol, Bristol, United Kingdom; MSc (Development Policy) from the University of Hohenheim, Stuttgart, Germany; and BS (Agricultural Economics) from the University of Agriculture, Faisalabad, Pakistan.

PREFACE

There are three reasons (*the motivation*) behind writing this book on policy research methods. The first is about the challenge university students (of social and policy sciences) face while planning, conducting, and writing research. The second concerns the practitioners (generalists, the civil bureaucracy), who must be able to evaluate the quality of research evidence presented to them in the decision-making process. And the third is a deeper concern about the weak research base in Pakistan.

The journey of this book started with my first-ever research methods course for M.Phil. (social sciences) students at PIDE, a decade ago. I realised that it takes a lot of time, effort, and energy to prepare good and informative lectures. Delivering lectures effectively requires interactive mode of discussion and employing practical knowledge. Despite all the effort in teaching research methods in a classroom, at the time of their research theses, I found most students asking questions such as: (a) "what should be my research topic?", (b) "how will I get the data?", (c) "how will I write my thesis?", and (d) "who will supervise my research?" Maybe these questions are relevant for them, but primarily, they should be more concerned about (a) the research idea, instead of the research topic; (b) the research scope (research questions), instead of looking for data; (c) collecting and processing the required data to elicit findings, instead of worrying about writing research; and (d) the public policy relevance of their research, instead of looking for a supervisor! Well, I do not blame the students entirely. It is also a matter of pedagogy techniques and hands-on experience. There is a method in the madness: idea, process, and dos & don'ts in research. So, the first motivation to write this book is to guide students in conceptualising the research idea followed by designing, conducting, and completing their research projects through direct and immediate advice. This book includes almost everything students need to know about their research process in a concise manner, making their research journey comfortable and productive.

For the last five years, I remained directly (or indirectly) associated with numerous training institutes across Pakistan, engaging with practitioners (public sector professionals and civil servants). It is always an enriching experience interacting with practitioners and knowing what operational challenges they face implementing

policies which are often formulated/suggested by technocrats (professionals and researchers). No doubt, there is a wide research-policy gap in the country at all levels of governance. To find solutions to complex policy problems, this gap needs to be bridged through interactions. During my service at the federal constituent unit (NIM Islamabad) of the National School of Public Policy (NSPP), I was mandated to write a comprehensive Research Guide for their mid-career and senior management trainee officers. This book is a refined version of that Guide. Teaching research methods to generalists does not mean they should become researchers. Instead, it is to enhance the research skills of civil officers vis-à-vis promoting deeper understanding and greater utility of research-based evidence in public sector management and public policy decisions. So, the second motivation is to provide a handy research guide for practitioners that they can consult anytime for their personal and/or professional effectiveness.

The *Research for Social Transformation and Advancement* (RASTA) is the largest economics and public policy research grants programme for policy-oriented research in Pakistan. The programme invites research proposals under its *Competitive Grants Programme* (CGP) bi-annually. Leading RASTA as the Project Director – along with my mentor, Dr Nadeem Ul Haque and worthy members of the Research Advisory Committee (RAC) – is the most rewarding experience so far in terms of establishing research networks, engaging all stakeholders concerned, and promoting public policy debate on issues facing Pakistan. In the last two years, around 630 applications were submitted in four rounds of CGP out of that only 49 (7.8%) received grants. Being a member of the RAC also, it is of great concern that we had to find and fund good research proposals. And it is worrying that most of the RASTA CGP applicants were professionals. We understood that there is a research-policy disconnect in the country, but through RASTA engagements we realised that there is also a disconnect between researchers and academics. There are around 200 Higher Education Commission (HEC) recognised universities and degree-awarding institutes in Pakistan, and they rarely collaborate: exchange ideas or engage on public policy issues. So, it is not just the weak research base. It is also about the fragmented research culture. Last, but not least, the motivation to write this book is to provide a research handbook for all young and emerging researchers which they may use to write successful research proposals, plan and conduct research projects effectively, and prepare

useful presentations for their lectures.

This book is a gift from me to all students, practitioners, and young and emerging researchers. It is an open-source document: available on the PIDE website <www.pide.org.pk> for free download and use. The only request is to cite this book when you use its material in any form so that others may find a lead to this source and that is how we promote research culture too.

(Faheem Jehangir Khan)
faheem@pide.org.pk

PART I

RESEARCH ORIENTATION

PART I: RESEARCH ORIENTATION

Research is an organised and systematic collection, analysis, and presentation of information in order to establish facts and generate knowledge by reaching a new understanding. In public policy, research is a scientific enquiry that seeks to investigate a concept and/or a problem situation in order to gain a deeper understanding and reaching effective solution through systematic collection, analysis and interpretation of data. The process entails a careful and detailed investigation into a specific problem, concern, and/or issue employing an appropriate research strategy (or method). **Research skills** enable you to (a) plan, design and conduct policy research; (b) evaluate the quality and utility of results; (c) raise valid questions about the research process and policy implications; (d) manage problem-solving situations by consolidating *what works, why, and why not;* and (e) it improves personal and professional effectiveness in managing public policy-decisions.

Traditionally, research has been carried out to answer questions and contribute to existing understanding and knowledge about the subject (Kara, 2017). It is a well-established fact that policy decisions based on research evidence are more effective in terms of outcomes than decisions made on intuition or observation alone. *Figure 1* shows the relationship between data processing and precision in decision-making. **Data** (in raw or unorganised form), once gathered and processed, is converted into **information** which is often useful, and organised, but can be changed or moulded. It mainly involves relevant questions about 'who', 'when' and 'where'. Journalists often rely on such information to publish a news report/story that can be interpreted in different ways, none of which is certain in terms of credibility. However, good researchers do not just rely on information, a piece of information may intrigue a researcher to (properly plan, design and) conduct research that provides evidence based on further data processing and converting it into facts and knowledge.

Figure 1:   *Data processing and decision-making*

Level of exactness

How? Understanding, Actionable, Change — **Wisdom**

Why? Contexual, Learning — **Knowledge**

Facts — What? Structured, hard to change

Information — WHO? WHEN? WHERE? Useful; organised; easy to change

Data — Raw signals; organised, know-nothing

Level of improvement in decision-making
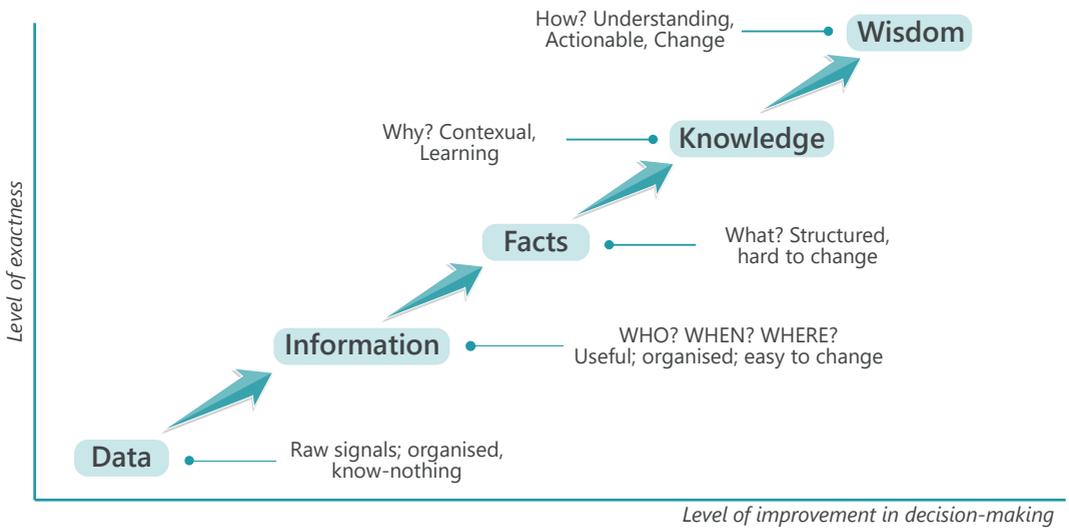
Source: author's illustration (modified DIKW Pyramid)

Facts are structured data mostly presented in the form of numbers (such as official statistics). Facts are reliable numbers and are often called 'hard data' since they are not easy to change due to their objective reality. Quantitative research mostly relies on these hard numbers to produce results by testing the 'what' question. For example, what is the trend of enrolment rate in primary schools; what proportion of (how many) people live in poverty; or how much funds (quantity) were allocated for infrastructure development in previous years? Although these hard numbers are critically important in research since they help us to infer 'what has happened?' but may not always help us completely to comprehend 'why it has happened?'

To gain a deeper understanding, the qualitative research approach helps generate **knowledge** by exploring the 'why' question. For example, why the trend of enrolment rate in primary schools remained low; why certain proportion of people continues to live in poverty; or why more funds were allocated for infrastructure development in a specific region? Generating knowledge through answering such questions requires deep digging and rich contextual understanding.

Knowledge translation and mobilisation have become increasingly important for

research sponsors and researchers to make the research findings available to the relevant quarters. Knowledge generated through evidence-based research could benefit governments and other stakeholders to devise/review public policy processes and make decisions while designing/ revisiting policy interventions. Gaining knowledge often requires proper research to define and understand the key issues as well as to develop constructive ideas to advance a policy implementation plan. However, for research to have an impact, the results must inform policies, shape programmes, and be translated into practice.

Eventually, the data processing leads to the level of **wisdom** that helps to completely understand the 'how' aspect, i.e., the ability to critically analyse, evaluate and compare research evidence/policy arguments, and manage problem-solving situations by consolidating 'what went wrong, why, and how to fix it?'. So, basically, with every passing stage of data processing – from data to information, to facts, to knowledge and eventually to wisdom – *the level of exactness* (y-axis) about knowing who, when, where, what, why and how improves in the understanding of the problem under consideration that increases the *probability of making better decisions* (x-axis).

1.1.   RESEARCH IN POLICY AND PRACTICE

Research is a key component of knowledge resource which is used to inform, and sometimes to influence, policy decisions. The purpose of research is to generate knowledge and guide policy by supplying empirical evidence that would enable policymakers to make decisions and choices. In practice, research follows policy and policy issues shape research priorities (Becker & Bryman, 2011). Research has a vital role in any public policy process – from agenda-setting to policy formulation, decision-making, policy implementation and evaluation. At the *agenda-setting* stage, research helps to define an emerging/prevailing policy problem. At the *policy-formulation* stage, research facilitates understanding the reasons causing certain policy problems and suggests possible solutions. This is followed by the *decision-making* stage where data and evidence are critical for making or breaking decisions. The *implementation* stage is primarily the stage where policies (or decisions) are transformed into action. Processes involved in this stage are often examined at the final stage of the public policy cycle called '*evaluation*'.

It seems policymakers/practitioners and researchers live on different planets. This notion of disconnect between different sets of actors involved in managing different stages of a policy process is referred to as the **research-policy gap**. This gap is prevalent due to several barriers on the research and policy sides. On the *research side:* the research topics are not always relevant to the policy needs, conclusions are not definitive, and/or policy implications often lack the perspective and feasibility aspect. Lack of adequate research and development (R&D) funding, lack of expertise, poor quality data, and poor dissemination of research also undermine the value and effectiveness of research. By contrast, on the policy side: policymakers and practitioners have short time horizons due to which they often look for quick fixes. They are too busy to read lengthy research papers and reports, hence rely on practical solutions. Instead of the technical soundness of the research, policymakers and practitioners are often more concerned about the development priorities, completion time, expenditure, visibility and reputation, political risks and possible backlash from the opposition.

Figure 2:   Research-policy gap

Researchers   Policy Makers
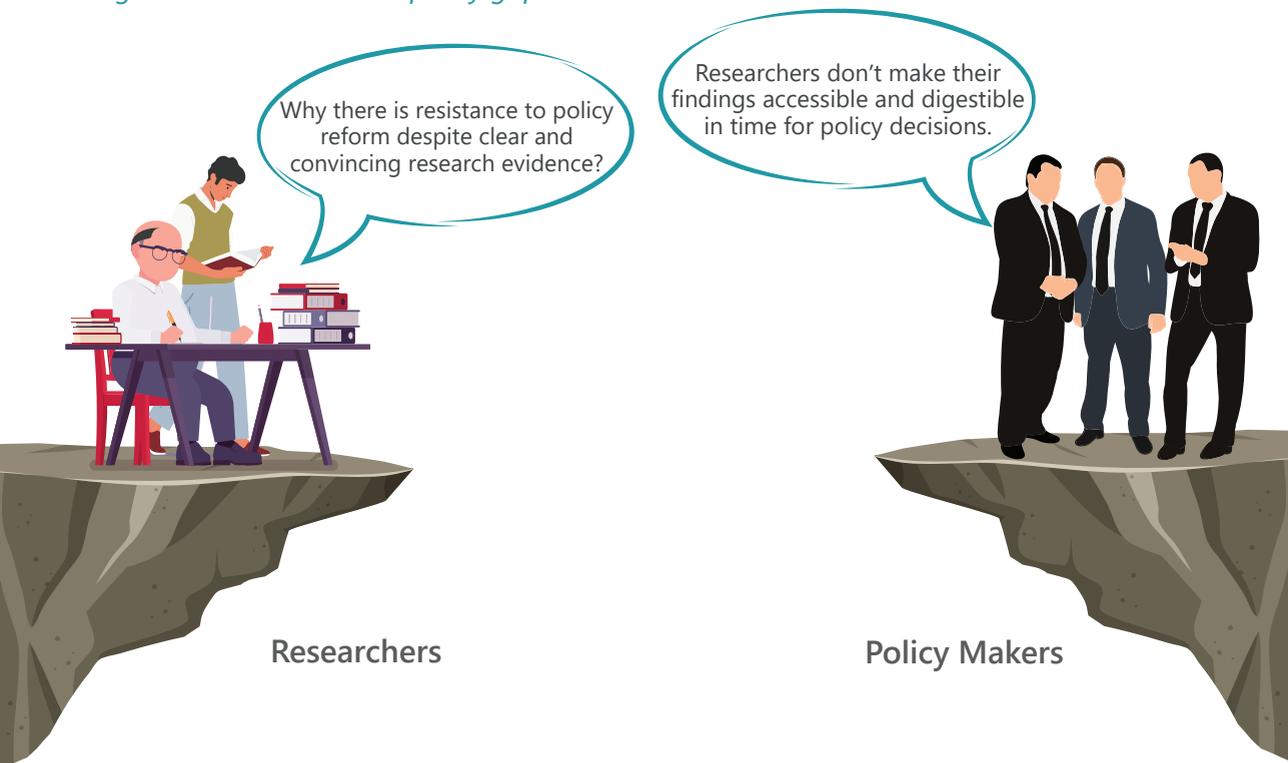
In a changing world – such as demographic, social, economic, political, and climate change – this disconnect can be disastrous for the effective management of public policy and sustainable development. To *bridge* the research-policy gap, primarily, there is a need for researchers and policymakers/practitioners to interact more frequently and understand the policy process and policy needs. Their frequent interactions would not only help the policymakers to revisit/ formulate the future policy agenda but would also inform the academia/researchers' community about the demand for research in the government. Further, to mitigate the impact of the ever-changing political and policy environment, policymakers and practitioners must learn and understand the value of research and its effective utility in managing policy decisions.

Typically, there are three broad **policy challenges**. (a) *The problem is unknown, and the solution is unknown* – such as the initial period of COVID-19. At this stage, the challenge is to define the problem in such a way that there is a broad agreement on its causes and dimensions. Without that the discussion about possible solutions is meaningless. (b)*The problem is known, but the solution is unknown* – such as the time when COVID-19 was recognised as a pandemic but there was a scientific war over the type and effectiveness of the vaccine that would keep humans safe from it. Although research has an important role in defining problems and suggesting possible solutions, it is not always enough. This takes us to the third policy challenge: (c) *The problem is known, and the solution is known too, but disputed* – such as in the case of the Kalabagh dam in Pakistan. This type of policy challenge is often caused due to information overload and/or knowledge conflict over the recommended solution(s). To overcome this stage, it is imperative to engage with relevant stakeholders, disseminate research findings, and understand the complexities through policy debate and discussion.

Policy research is a type of research that aims to provide answers and evidence which can contribute to the improvement of policy and policy-making processes. Policy-oriented research is not only limited to finding solutions to policy problems but is also concerned to improve better practices and interventions by informing organisations, policymakers and decision-makers with pragmatic, action-oriented useful recommendations (see Becker, Bryman & Ferguson, 2012). Similarly,

policy-oriented research entails informing and/or understanding one or more aspects of the public policy process (Becker & Bryman, 2011). As presented in *figure 2*, there are two types of policy research.

Figure 3:   *'Research for policy' and 'Research of policy'*

'**Research *for* Policy**'   '**Research *of* Policy**'
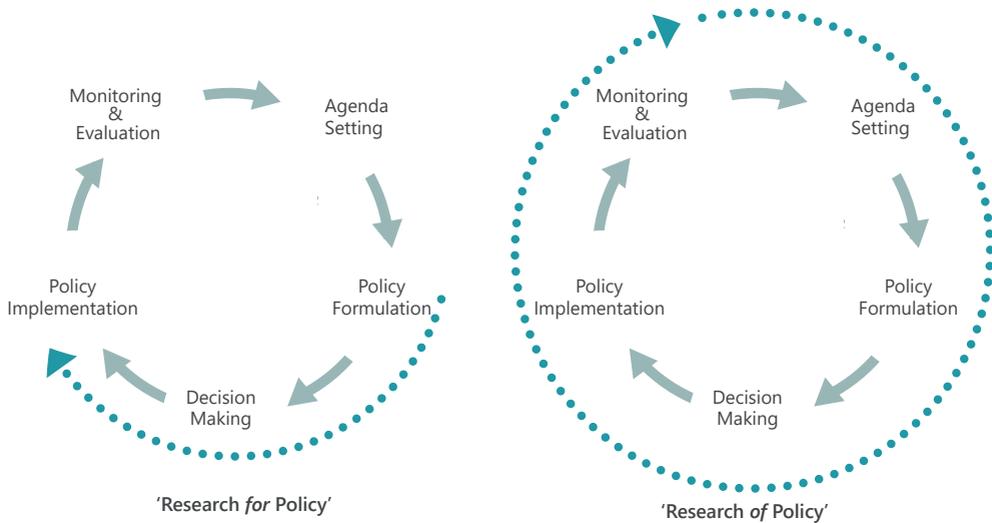
Research for policy is concerned to inform actors involved in managing various stages of the policy process (from the policy formation stage to the policy implementation stage). This attempts to explain the policy-making process and its execution. This type of research is primarily concerned with generating policy – suggesting possible solutions to deal with a particular problem. For instance, policy measures for the Pandemic (COVID-19) from 2019 onwards. **Research of policy** is concerned with how the problem was defined, the agenda was set, a policy was formulated, decisions were made, and how the policy/intervention was implemented, evaluated and changed. This attempts to review the whole (or a particular stage of) policy process and suggest revisions, if required. For instance, the evaluation the of whole programme or particular policy stages involved in the Benazir Income Support Programme (BISP).

It is to realise that research has a key role in policy and practice. Decisions made on perceptions and observations are bound to fail as compared to decisions based on data and evidence. It is therefore the shared responsibility of researchers and

policymakers/practitioners to realise the effective value of R&D and its utility in managing policy decisions.

1.2. THE RESEARCH PROCESS

Before starting a research study (or project), it is important to understand the main stages/steps involved in a research process. *Figure 4* outlines the five stages of a typical research process: (1) planning research, (2) research design, (3) data collection, (4) data analysis, and (5) writing research. As you become familiar with each step, it will become easier for you to plan and carry out research to evaluate research conducted by others (Kara, 2017).

Figure 4:   The research process

Planning Research	Research Design	Data Collection	Data Analysis	Writing Research
• Research Idea • Background Research • Research Scope	• Research Methods • Sampling Technique • Method of Data Collection • Data Analysis Method • Time and Resouces	• Secondary Data Collection • Primary Data Collection	• Quantitative vs Qualitative Data Analysis • Primary vs Secondary Data Analysis	• Writing Research • Presenting Research • Disseminating Research

This process is usually followed in all forms of research and evaluation projects, regardless of the method used such as quantitative, qualitative, mixed methods, evaluation research and/or case study research. Researchers must follow this process and document the study in such a way that a reader can understand the investigation clearly (i.e., research objectives, methodology, data, findings, and conclusion) and/or another researcher can conduct/replicate the same study again.[1] A detailed discussion about each stage/step involved in the research process is presented in 'Part III: Managing the Research Process' of this book.

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[1] '*Appendix 1*' highlights some key considerations for producing good quality research.

PART II

RESEARCH METHODOLOGY

PART II: RESEARCH METHODOLOGY

The selection of an appropriate research method(s) is the most critical step in the research process. It primarily depends on the research question(s) that a researcher wishes to answer. It also depends on the scope of the research that includes a range of additional considerations such as the problem under examination, understanding of the policy sector and policy processes, time and space, data sources, methods of data collection and analysis, and sampling and ethical considerations. This part of the book presents different types of research methods and discusses which method can be most suitable to achieve research outcomes.

Box 1. Why learn research methods?

- It provides you with an understanding of the overall research process: how research is done.
- It improves your awareness of the range of research methods, enhances your capability to employ appropriate data collection techniques, and enables you to choose from a variety of data analysis approaches.
- It enables you to follow the dos & don'ts when employing a particular approach to collecting and/or analysing data.
- It improves your skills which are transferable such as sampling, questionnaire design, fieldwork, interviewing, etc.
- It empowers you with a critical knowledge of what constitutes good and/or poor-quality research.

For example, a popular toothpaste advertisement claims that "*8 out of 10 Dentists recommend (their) Toothpaste*". Now, did you ever ask: who were those eight (80%) dentists who recommended the toothpaste, and why? Or what are the reasons based on which two (20%) dentists did not recommend the same toothpaste, and why? What was the sample size? Were there only 10 dentists (respondents) or more? What sampling technique was used to collect this information? What research method was adopted to collect their responses? etc. This is just an example to suggest how startling results can influence our perceptions and decisions.

Knowing nothing or little about the research scope and methods used raises questions about the validity and reliability of a research. It is to understand that "*the devil is in the details*". Therefore, every research needs to be evaluated on certain qualified parameters and that is only possible when you have adequate knowledge of the research process and methods. Students need to learn methods for their research theses while policymakers and practitioners must learn research skills so that they can evaluate the quality of evidence presented to them by professionals.

2.1. QUANTITATIVE AND QUALITATIVE RESEARCH

There is a range of considerations in the process of conducting policy research. Among these, the distinction between quantitative research and qualitative research must be understood to devise an appropriate research methodology. The quantitative and qualitative research distinction represents a useful means of classifying different methods of investigation. *Table 1* presents a contrast between these approaches.

Table 1: Contrasts between quantitative and qualitative research	
QUANTITATIVE	**QUALITATIVE**
Numbers and statistics (*Quantity*)	Words/Language/Expression (*Quality*)
Interest/point of view of a researcher	Interest/point of view of participants
Researcher distant	Researcher close
Theory testing (*Deductive*)	Theory emergent (*Inductive*)
Test pre-set hypothesis	Explore complex (societal/policy) issues
Static	Process
Structured	Unstructured
Generalisable results	Contextual understanding
Hard, reliable data	Rich, deep data
Statistical relationships	Analysis of patterns and characteristics
Macro	Micro
Behaviour (*or trends*)	Meaning (*of actions*)/Patterns
Artificial settings	Natural environment
Answer more mechanistic 'what?' questions *(How many, how much, how often?)*	Answer 'why?' and 'how?' questions *(How and why this has happened?)*
Distribution; Correlation analysis; Statistical significance; ANOVA; Regression etc.	Thematic analysis; content analysis; discourse analysis; Grounded theory; Conversation analysis

Source: Modified and amended from Bryman (2012)

Quantitative research aims to test pre-determined hypotheses and produce generalisable results which are often useful to answer more mechanistic 'what' questions such as how much, how many, and how often. A quantitative research method emphasises objective measurements and quantification in the collection and analysis of data based on hard and reliable statistics. This research methodology usually uses numerical data to study incidence and trends you can count and measure at the macro-level and employs statistical models to examine causal and correlative relationships between variables.[2] This requires structured information from large numbers of people, usually through random (or probability) sampling, followed by a collection of primary data through surveys. Other sources of data may include the collection and analysis of secondary data; often published and/or official statistics. A quantitative method is useful to investigate the incidence of a problem or the status of a policy initiative at the macro level. Such as the incidence of poverty in Pakistan; the status of education enrolment in Punjab province; the impact of tax policy intervention on revenue generation, etc.

Qualitative research aims to provide an in-depth understanding of human behaviour/ actions and complex societal/policy issues that are often useful to answer 'why' and 'how' questions. This research method usually collects and interprets rich descriptions and deep data (words and other forms of descriptive data such as pictures, sounds, and expressions) rather than quantification in the information collection process and analysis. This requires semi-structured or unstructured information from small numbers of people, usually through non-random (or non-probability) sampling, followed by a collection of primary data through fieldwork.

Qualitative research methodology has a strong basis in the field of policy, social, and political sciences. It is considered suitable to study human behaviours, actors' interactions, context-specific cases, and/or explore complexities in public policy processes the at micro-level. Such as political economy of development budget allocations; implementing education sector reform in a town; electoral reform process at the policy level; managing international relations with a certain country in a specified context; criminal investigation and/or judicial process in specified cases, etc. Common methods used for qualitative research include *interviews* and *focus group*

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[2] Many statistical packages/programmes are available to handle and process large numerical (primary) data sets such as PASW (SPSS), EViews, R and Stata.

discussions (FGD).[3] Researchers can also record and analyse qualitative data from observations (or ethnography)[4] and interactions, in such a way that the researcher becomes a part of the situation rather than an outside observer.

The distinctive feature of the quantitative method is that the results can be generalised to the wider population while the findings of qualitative research offer a contextual understanding of a particular problem under examination. Although quantitative and qualitative research methods have contrasting approaches and applications, it is important to understand that these are not contesting methodologies! Instead, both complement each other. For instance, knowing 'what' proportion of people live in poverty (using a quantitative approach) and understanding 'why' a certain proportion of people continues to live in poverty (employing a qualitative approach) would enlighten the comprehension of the problem that eventually helps to answer the 'how' part which is critical to suggest a problem solution. Hence, a combination of both (quantitative and qualitative methods) may help to comprehend a deeper understanding of the issue or policy problem.

2.2.   MIXED METHODS RESEARCH

A combination of quantitative and qualitative research methods within a single research strategy is called a **mixed methods** approach. For instance, a combination of a structured interview with observation or focus group discussions, or semi-structured interview with closed-ended questions,[5] ratings and rankings of quality and performance.[6]

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[3] Detailed discussion about 'interviews' and 'focus group discussion' is presented in '*Section 3.3-B: Primary Data Collection*' of this Book.

[4] Ethnography is the recording and analysis of a culture or society, usually based on participant-observation and resulting in a written account of people, place and/or institution (Simpson & Coleman, 2017). Methods such as ethnography and randomised control trials are tedious and time taking approaches used in social research

[5] Closed-ended questions require a simple response such as 'yes' or 'no', while *open-ended questions* need more thought which require more than a simple one-word response.

[6] Description of these data collection tools is discussed in '*Section 3.3: Data Collection*' of this Book.

> **Box 2.   *Adoption of 'mixed methods' approach—Example***
>
> An independent team of researchers were asked to evaluate a public sector health insurance scheme in the Faisalabad district (Pakistan). The scheme was offered to some 84,000 poor families residing in six tehsils of Faisalabad district. To examine how effectively the scheme was implemented and what were the actual benefits of the scheme, a mixed methods approach was adopted. The rationale was to collect quantitative data from a representative sample (using a structured questionnaire) and triangulate that with qualitative data collected from selected segments of the same population (through focus group discussions).
>
> Quantitative Data
>
> Qualitative Data
>
> Interpretation based on QUAN + QUAL results
>
> *Mixed Methods: Triangulation Design*

Although the mixed methods approach is getting popular lately, researchers should be mindful that the combined application of quantitative and qualitative data and findings deriving from such research should be mutually illuminating! The 'mixed methods' research is often used to triangulate findings. This means that qualitative and qualitative data are to be collected on the same topic and timeframe in order to mutually corroborate. This approach is considered more effective in research projects where findings generated by one method can be explained by the other.

2.3.   CASE STUDY RESEARCH

A **case study** entails a detailed, intensive, and context-specific analysis of a single thing (*case*). The prime objective of a case study is to develop as a complete understanding of a researched case as possible by providing multiple perspectives

rooted in a specific context.[7] In this approach, the basic idea is to study *one case* in complete detail such as a person, policy, project or intervention, process or institution, organisation, community, location, or an event (as the *subject* of case analysis), using single or multiple research method(s). This research approach is often recommended where no single method can provide an in-depth account or explanation of the policy problem, and where understanding of the issue needs to be holistic, comprehensive and contextualised.

The case study approach is often associated with qualitative research, but it is more of a mixed methods approach. This may involve the collection and processing of qualitative and quantitative data, the use of multiple (data collection and analysis) methods – such as document analysis, semi-structured or unstructured interviews, participants observations, focus group discussion, and/or analysis of official statistics. A case study is a recommended research methodology to conduct 'research of policy'[8] and/or detailed analysis of a situation/phenomenon at a specific stage of a policy process to understand the complexities or outcome. The case study method is widely popular to explore cases in public policy, public administration, anthropology, sociology, psychology, and business management.

In most cases, the case study research design[9] is structured around the *context* rather than sample cases (individual research participants). In such circumstances, the *subject* of a case analysis might be, for example, a person (e.g., Imran Khan being a cricketer or a politician), a policy (e.g., trade policy, madrassa reform, or Vision 2025), a project, programme or policy intervention (e.g., CPEC, Ehsaas programme), a process (e.g., a legal proceeding or electoral reform process), an institution (such as the role of Federal Public Service Commission in civil service reform), or an organisational context (such as a university or hospital, involving their management, beneficiaries and stakeholders). Less complex case study designs might involve only two individuals in a case, such as a professional lawyer and his/her client.

According to its research design, case studies can be divided into three categories: explanatory, descriptive and exploratory. The *explanatory case study* primarily focuses on examining the causes of a particular incident (or event) and its effects by answering 'how' and/or 'why' questions.

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[7] See Bryman (2012 & 2021); Flick (2009); Ritchie & Lewis (2003); and Silverman & Marvasti (2008)

[8] See Section 1.1: Research in Policy and Practice of this book.

[9] See Section 3.2: Research Design of this book.

This approach is often helpful to explain the reasons behind the quantitative data. For instance, research[10] suggests that 31% of educated youth are unemployed in Pakistan. Here, the explanatory case study may help to identify multiple dimensions/reasons for youth unemployment in a particular context. The *descriptive case study* mainly analyses the certain sequence of events after a certain period to discover the key phenomena. And the *exploratory case study* usually helps to explore a situation and create an in-depth understanding of the subject by answering 'what' and/or 'who' questions. This may lead to a larger investigation such as a (quantitative) survey to test the incidence and scale.

Although not very common, multiple cases can be examined under a case study research design to study a particular phenomenon, referred to as comparative-case studies. The research methodology for single and **comparative-case studies** are similar, however, the latter approach requires a more extensive conceptual, analytical, and synthesising examination of cases, due to which the scope of the study expands exponentially – over time, within and across contexts. Nevertheless, the comparative design enables us to better understand the phenomena/situation when meaningfully contrasting cases are compared. This research method is often used to conduct cross-cultural research such as a study of nations, casts, ethnicity etc. Nevertheless, series of events such as *dharna* ((strikes/sit in)), elections, budget formulation exercises etc. can also be researched using this approach exploring trends (comparisons) over a certain period. However, this method can also be applied to identical studies, known as **multiple-case studies**. For example, Ayub & Hussain (2016)[11] researched organisational performances in nine case studies of Pakistani institutions from the public and private sectors. In both, comparative and multiple-case studies, consistency, and comparability (of data, instruments, variables, and characteristics of the sample) are the most important considerations in the research design.

The rationale for selecting this method would require clear operational definitions of the concepts, key evaluation questions, and the selection of comparable cases and indicators for comparative analysis. An in-depth understanding of each case is critical to establish the foundation for the analytic framework that would then be used in the

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[10] Ul Haque, N. & Nayab, D. 2022. Opportunity to Excel: Now and the Future. Pakistan Institute of Development Economics: Islamabad.

[11] Ayub, M.A. & Hussain, S.T. 2016. *Candles in the Dark: Successful Organisations in Pakistan's Weak Institutional Environment, Karachi: Oxford University Press.*

cross-case comparison. This approach helps to understand the casual questions such as how and why a particular policy or intervention worked or failed to deliver. For instance, the motivational level of a group of people (such as officers or staff) or the performance of different departments within a university can be examined as comparative case studies. Similarly, the utility and facilities of Metro Bus Systems operating in different cities can be compared. In such cases, unlike the single case study approach, the sample (groups of university staff or passengers) would be the subject of case analysis.

2.4.   ACTION RESEARCH

The term **action research** was coined in the 1940s by the German-American social psychologist Kurt Lewin (Kara, 2017). The purpose of an action research approach is to diagnose an immediate problematic policy or societal situation through interactions between the action researcher and clients (or stakeholders), and to suggest solutions or guidelines to solve the problem. The process of action research is somewhat different from the usual research process. It is an interactive and collaborative inquiry process. Instead of a single-method approach for collecting and analysing data, action research has a holistic strategy to diagnose and solve problems. There is a dual commitment at the end of the researcher: (a) to study the system and processes, and concurrently, (b) active collaboration with the members of a social setting/system in the diagnosis of a problem; both must lead to a desirable direction/solution. Although the research objectives are often clear at the beginning, the methodology to investigate the problem situation needs to be reviewed and refined during the course of the research.

Figure 5:   Action research process
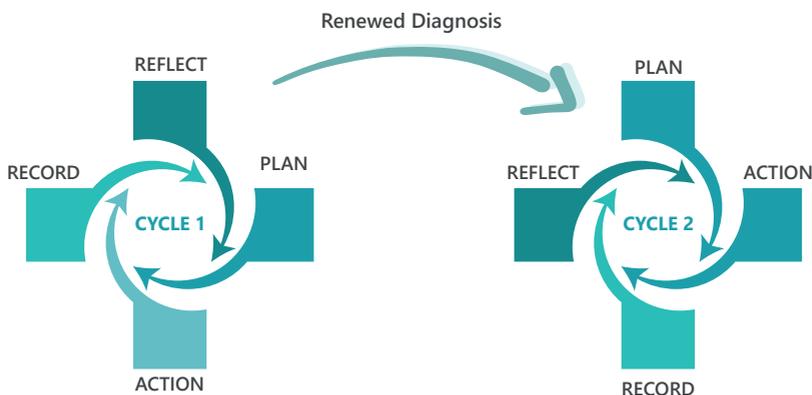
Stephen Kemmis (1982) has developed a *cyclical model* of action research: plan, act, observe and reflect. A typical action research cycle has four steps: (1) plan an intervention; (2) take action to enact the intervention; (3) observe/record the process and outcomes of the intervention; and (4) reflect on the process and outcomes (*see figure 5*). The second cycle starts with a revised plan (or solution based on a renewed diagnosis) and ends with a reassessment of the action taken. This process continues until the problem is resolved.[12] Examples of action research may include educational research conducted by teachers and/or professional trainers examining and transforming their classroom methods and/or pedagogy practices.

Action research may involve the collection of both quantitative and qualitative data. This research methodology is used in the natural environment, rather than in artificial settings since its primary focus is to solve real policy/societal problems. Hence, the approach is an effective way to gain in-depth knowledge about the problem. Application of action research is common in the fields of policy sciences, public administration, and academic and management sciences. The application and relevance of this method are still contested. On the one hand, this approach is sometimes dismissed by academics due to the lack of rigour and potentially biased approach. On the other hand, it is advocated based on engaging people (clients or beneficiaries) in the diagnosis and findings of indigenous solutions to problems instead of imposing ready-made solutions to predefined problems.

2.5. EVALUATION RESEARCH

Evaluations are used selectively to answer specific questions related to design, implementation, and results (Gertler et al., 2016). Evaluation research deals with the systematic assessment of resources – time, money, and efforts – spent to achieve a certain goal(s) within an organisational context. This type of research primarily measures the value or outcomes of services, interventions, projects, policies and/or processes. The objective of evaluation research is to explore '*what is (not) working fine?*' and suggest '*what and how to make improvements?*'. Hence, evaluation research should improve learning from real-world experience and strengthen decision-making for future interventions.

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[12] For more details about Action Research, see Putman, S.M. & Rock T. 2018. Action Research Using Strategic Inquiry to Improve Teaching and Learning, Sage Publications, Inc.

Figure 6:   *Elements of a results chain*

Inputs	Process	Outputs	Outcome	Impact

Implementation (Supply Side) | **Results (Demand Side)**
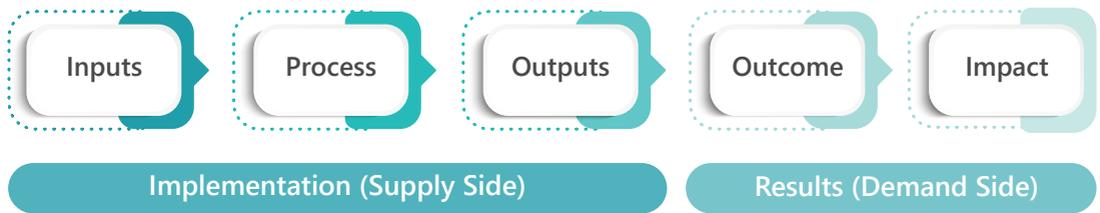
Many research studies use a *results chain* to evaluate a project or programme intervention depicting the theory of change (*see figure 6*).[13] The chain covers both implementation (supply side) and results (demand side). The former concerns the work delivered by the project manager(s)/implementation agency including inputs, activities (processes), and outputs. The latter involves the assessment of outcomes (i.e., achievement of planned targets) and measurement of impact (i.e., extent of benefits). These elements of the chain help to measure the effectiveness. For example, *figure 7* presents stages and types of evaluations that may involve in the case of a school project, i.e., what and how resources were mobilised (inputs); how planned activities were transformed into action (process); what and how tangible targets were achieved (outputs); how it benefitted the target beneficiaries (outcomes); and what is the extent of benefits (impact) such as progression, utility, sustainability etc. To conceptualise this further, imagine evaluating a high-rise building project or evaluation of a health facility.

Figure 7:   *Logical framework of a school project*

Inputs	Process	Output	Outcome	Impact

| Formative Evaluation | Process Evaluation | Summative Evaluation | Outcome Evaluation | Impact Evaluation |

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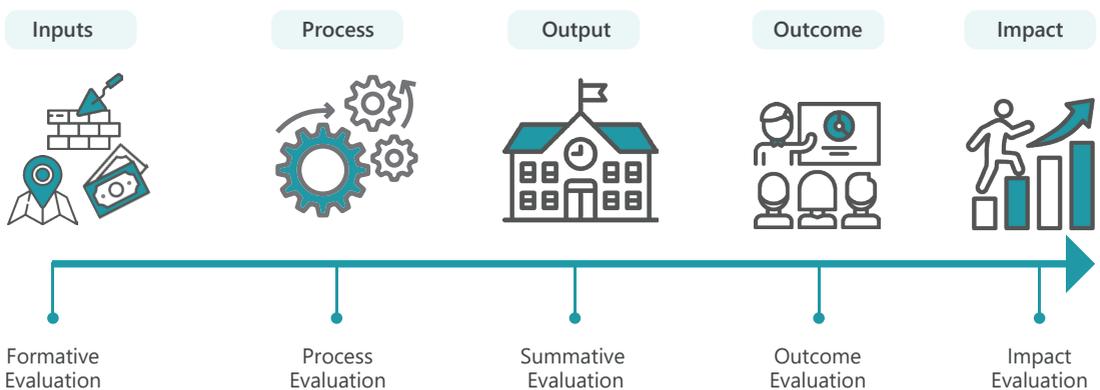
[13] Other evaluations may use similar theoretical models, logical model, Logframe or logical framework, and/or outcome models.

Process evaluation (also called *programme monitoring*[14] or *implementation evaluation*) focuses on the activities (and bottlenecks) involved in a process. This evaluation exercise is conducted during the operational phase which allows the management and stakeholders to review how well a certain service, intervention, or policy is working. For example, process evaluation of a healthcare centre would tell us about the quality of service-provision and patients' experience such as waiting time in OPD and/or a medical examination. Process evaluations can be conducted periodically to better understand and review future activities in light of the research findings.

In the context of a programme or a project, three types of evaluations are considered important: (a) formative evaluation, (b) mid-term evaluation, and (c) summative evaluation. The *formative evaluation* (also known as *need assessment*) focuses on conducting a baseline survey with objectives to record the status and quality of existing services and assess the feasibility or acceptability of considering the needs/requirements of beneficiaries before embarking on a project/policy intervention. For example, a baseline survey of poor families in a locale before offering cash grants, skills training and/or health insurance through a certain project. The *mid-term evaluation* (also known as *mid-term review*) of a project is usually conducted to evaluate the progress made towards achieving planned goals and targets. For example, a mid-term review of the installation of a 1,000 MW solar power plant. The findings of a review exercise would provide an opportunity to the project management and stakeholders to assess the progress made, revisit activities, and make necessary modifications, if required. Finally, the *summative evaluation* (also called *end-term evaluation*) is conducted at the time of project completion. The focus of this evaluation is to record the immediate outcomes of a project. For example, an evaluation of the metro train service soon after its inauguration or assessing students' learning at the end of a course. The results of summative evaluation often inform policymakers regarding whether to continue, discontinue, replicate, or scale up the intervention.

The **outcome evaluation** (also called *effectiveness evaluation*) focuses on examining how well a certain policy or intervention achieved desirable objectives by measuring

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[14] "Monitoring is a continuous process that tracks what is happening within a programme and uses the data collected to inform programme implementation and day-to-day management and decisions" (Gertler et al., 2016, p.7).

results. For example, change in civil officers' performance and attitudes after receiving training. This type of evaluation is typically carried out after a reasonable time interval from the completion of a certain intervention. The **impact evaluation** seeks to answer typical cause-and-effect questions and measures the positive/negative and/or intended/unintended effects of certain interventions or collections of activities. For example, the effect of cash grants and health insurance on poverty alleviation or the effect on students' academic performance and improvements in their IT skills after the provision of laptops. Two assessment techniques are integral to the process of conducting accurate and reliable impact evaluations—causal inference and counterfactuals (Gertler *et al.*, 2016). Researchers often adopt the *counterfactual* technique – what would have happened in the absence of a certain service, intervention, or policy – to measure the impact.[15]

Similarly, a *cost-benefit analysis* is also a useful approach to assess the extent of impact; the (direct and indirect) cost of resources versus the outcomes (or benefits). About the timing of conducting an impact evaluation, according to an unsaid rule in public policy analysis, impact evaluation of projects and policy interventions is recommended after three to five years of project or programme completion. Although this period can be less to evaluate the benefits, a three to five years post-completion period would allow researchers to assess the actual utility and sustainability of the policy intervention introduced.

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[15] For detailed guidance related to impact evaluations, consult two resources: (a) *Impact Evaluation in Practice, Second edition* by Gertler *et al.*, 2016, and (b) *Handbook on Impact Evaluation: Quantitative Methods and Practices* by Khandker *et al.*, 2010.

PART III

MANAGING RESEARCH PROCESS

PART III: MANAGING THE RESEARCH PROCESS

3.1.   PLANNING RESEARCH

Planning research is the first stage of the research process (*see figure 8*) that involves three steps: (a) research idea, (b) background research, and (c) research scope. Your objective at the planning stage is to broadly pick a research area, select a research topic, take into consideration a research problem, and formulate research question(s) that will guide your research.

Figure 8:   Steps involved in planning research

Research Idea

Identifying the area of (research) interest; refine research focus; & finalise the research topic

Background Research

Assessment of existing empirical and theoretical knowledge related to the research topic and problem under investigation

Research Scope

Set direction and dimension of research by defining the research problem and formulating research question

3.1-A. Research Idea

To develop your **research idea**, for instance 'what do I want to research?', you first need to explore whether there are any topics or researchable questions that might interest you. Pick a policy sector, go through published material, and think about a case from your academic conversation, professional life, or a recent event/phenomenon which you observed or came under discussions with friends or colleagues. Select a research area keeping in view your academic, professional, and personal interest and motivation. Research interest is recommended so that both intrinsic and extrinsic motivations keep you on the right track. Sometimes, a ready-made topic is provided by a university professor, funding agency, or senior manager. It seems like a blessing then, especially for students who are in search of a research supervisor so that they can complete their thesis and finish the degree on time. However, if a ready-made topic is not aligned with the interest of the student (researcher), there are chances that the learning outcomes are not achieved in terms

of research skills development. Similarly, a research area or topic that is popular but does not match your interest and/or expertise might lead to difficulties later on. Considering your strengths, it is recommended to focus on your own (research) interest!

> ⓘ *In the beginning, do not worry if you end up considering more than one area of interest to be researched. Start working on them simultaneously (keep it to a minimum) and try to shortlist those while conducting background research. Your task here is to pick one research area, ASAP!*

Nevertheless, apart from considering your interest in the research area, it is equally important to capitalise on your skills and available resources. Think about a suitable supervisor and key informants who have expertise in that same area. And do keep in mind the resources – data, access, knowledge, finances, time etc. – available to you.

> ⓘ *Keep in mind the feasibility of your research: How to conduct and complete this research within available resources? There is no point in working on a research topic which you cannot complete diligently in the given time and available resources.*

Once you pick a research area, it is important to narrow down (refine) the focus of your research which will help you to bring clarity while finalising your research topic. Try to focus on a specific aspect of a problem rather than solving all problems in one study. For example, if you are interested to research the 'transportation' sector, you may like to narrow it down to 'public transportation' in 'urban centres' (such as Lahore) and study 'female accessibility and mobility'. Similarly, if you are interested to conduct research on the 'education' sector, you may like to narrow it down to the provision of 'primary education' and study the impact of 'teachers training' in 'public sector schools' and that too in a certain city/region.[16]

This initial working on the research area and narrowing down the focus will help you to finalise a well-defined *research topic*. Taking the examples shared above, possible research topics could be: 'Public transportation in Lahore: Female accessibility and mobility' and 'Impact of primary teachers training on education quality in Balochistan'. There is a myth that a research topic cannot be touched once finalised at the beginning of a research process. This is not true! You can always refine your research

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[16] This does not necessarily apply to quantitative projects that are meant to collect large survey data for macro analysis. Large quantitative surveys tend to cover multiple dimensions in a single study.

topic (if deemed necessary) as you progress and learn from the experience. Having said that, it is helpful to know your research topic early in the research process. Once the topic of interest is identified, the next step is to conduct background research.

3.1-B. Background Research

Background research involves a review of published material (including secondary data) and theories/models relevant to the research problem. **Review of the literature** is an assessment of existing knowledge – both empirical and theoretical – related to your research topic and problem under investigation (Becker & Bryman, 2011). It is an important step in the research process. In this step, you would search and select, get access, read through and explore high-quality (recent) published material relevant to your research problem. Here, your *objectives* are to know: what is already known about the topic; the current state of the academic and policy debate on the problem; the theories, methods and strategies applied to study the problem; the pieces of evidence presented so far and critique of whether there are inconsistencies and controversies relating to the topic; who are the leading authors and their contributions in the area; and what concepts, theories and/or public policy decisions are relevant to it. For this very purpose, it is recommended to manage a *literature grid* file or use a spreadsheet (*.xls file)* to organise, store and analyse your literature review in tabular form.[17]

Table 2: Managing literature review grid—Template				
Source	**Topic/Research Question**	**Methodology**	**Key Findings/ Quotes (page #)**	**Limitations/ Future research**
1. Journal article (citation)	What was the purpose of research?	What methodology was used?	What are the key findings? Are there quotes which can be used?	Are there any limitations? Are there gaps for future research?
2. Book chapter (citation)				
3. Conference paper (citation)				
4. Online source (citation)				

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[17] You may search internet for a variety of 'literature review grid template' and choose the most suitable for your research project.

An initial survey of the literature would enable you to define the research scope, articulate the research argument, and formulate research questions and/or set hypotheses. A systematic and well-planned review of the literature will help you to get yourself familiar with the topic; understand the key contribution to the exploration and understanding of the phenomena; raise critical questions, challenge existing assertions and observations; and identify unanswered questions (gaps in the existing knowledge) where research is needed.

The culminating point of the initial survey of the literature is the identification of the gap in the existing literature where you could claim your contribution by conducting research. Once the objectives of the research are defined and the key research questions are formulated, the main survey of literature would begin in light of the scope, objectives, and research questions, leading to the key hypothesis for which the evidence would be marshalled by further research.

ⓘ *A literature review is not just a summary of the published material that you consult for your research. The review of literature must be relevant, narratively evaluated, thematically organised, and expected to be (constructively) critical.*

It is expected that, at the early stages of your research, a great deal of time will be consumed in exploring the existing literature and debating on the topic. It is important to get the most out of it, since you would not need this only for writing a section on literature review but must revisit the relevant literature while writing your findings and policy recommendations at the later stages; doing so will enable you to relate your findings with other research findings, interpret the data, and formulate conclusions. To execute this exercise, in an organised manner, try to do the following:

- *Search and identify* the relevant information using academic databases, online scholarly sites, knowledge networks, relevant government and think tank websites, official statistics, and libraries.[18]

- *Shortlist* the relevant literature. Not every research paper, report or dataset is relevant. While searching and reading material, evaluate the material according to quality, content, and relevance to your topic.

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[18] There are a variety of resources available such as Google Scholar, ResearchGate, academic journals, government documents (policies, plans, reports, official statistics), websites of academic institutes/think tanks (research papers, lectures, presentations and policy briefs), newspapers, books, magazines etc.

- *Read actively and critically* and *take notes* about the research objectives; the leading research questions posed; the context of the research; the type and source of data; the research methods adopted; and the key contribution/message(s) drawn.

- During this exercise, keep working on formulating your *research scope*: develop your research argument, list/refine your research questions, adopt/construct a narrative, and think about the research methods to answer your questions.

- Start managing your *references* and *bibliography*. You can do it either manually using a recommended style of referencing and citation or using MS Word 'References Tab' to manage your references digitally or using an open-source reference management tool such as 'Zotero' to import citations directly from bibliographic databases.

- *Plagiarism* is intellectual theft. Avoid plagiarism at all costs! It is strongly recommended that you properly *cite and reference* the published material. Nevertheless, it is important to understand what constitutes plagiarism and how to avoid it.[19]

It has been observed that some researchers may wish to avoid the literature review at the outset by stating that there is 'no' or 'limited' material available on the subject. This is a naïve approach! You need to develop skills in searching and exploring relevant datasets and published material for your research. There are a variety of *resources* available for literature search such as Google Scholar, ResearchGate, academic journals, university libraries, government documents (policies, plans, reports, official statistics), websites of academic institutes/think tanks (research papers, lectures, presentations, and policy briefs), newspapers, books, magazines etc. You must use different synonyms of words and terminologies to expand your search. Nevertheless, if you still do not find adequate material on your topic, then you might have to expand the locale by exploring data and evidence from other contexts.

3.1-C. Research Scope

The research scope delimits the research efforts to meet the overall objective of a research study and underscores the significance of your research with clear thoughts

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[19] See Section 3.5-A of this book to learn more about plagiarism.

and arguments based on the existing literature search and debate in a public policy context. It must be developed at a preliminary stage of the research process and articulated in such a way that it provides detailed descriptions of the *direction and dimension* of the research. This requires defining the research issue (or problem under consideration) and formulating research questions (or setting hypotheses). Failing to do so means ambiguity about the research objectives; eventually, that would not lead you to the desired expectations.

Box 3.   Defining a 'research problem'

To understand '*how to define a research problem?*', think of some policy intervention/project and imagine a specific 'issue' or 'problem' you would like to explore through your research.

For instance, take the case of a *Metro Bus Service* (MBS) in your town. Now take a moment, think, and suggest which aspect of the MBS should be investigated to inform public policy. You may think of the following issues:

- Cost and benefit analysis (*to examine its viability suggesting whether the government should invest in similar projects in other urban centres or not*)

- Accessibility and utility (*to evaluate if the service benefits different segments of society or not, and if yes, to what extent*)

- Sustainability (*to assess if the service is generating sufficient revenues that makes it self-sustaining in the long run or if it remains a burden on the government exchequer to provide subsidies and bear operational and maintenance costs*)

- Impact on traffic congestion and environment (*to measure if people with vehicles shifted to the MBS and resultantly has there been an impact on traffic congestion and the environment or not*)

This exercise enables you to focus on a particular area of concern, a condition that you think needs to be evaluated and improved through empirical evidence, and/or a problem that needs to be understood and eliminated. Knowing "*what do I want to research?*" (*purpose of your research*) will lead you to formulate research questions, generate meaningful understanding, and conduct a deliberate investigation.

The knowledge gained through the background research will guide you to identify the *research problem* which you want to investigate. This can be done by focusing on the precise problem that needs attention. This may include a collection of background information critical analysis of the existing debate, review of published material and assessment of contextual factors. This will assist you to understand the nature and scale of the problem; identifying root causes and risk factors involved; defining terms and concepts; exploring relevant knowledge, complexities, and behaviour of actors; and examining resource exchange and constraints. One way of doing it is to conduct a detailed *situation analysis*.[20] Situation analysis can be a macro-analysis (policy, culture, norms, and practices), context-analysis (history, structure, resources, and interpersonal), SWOT (strengths, weaknesses, opportunities, and threats) analysis, and/or PEST (political, economic, social, and technological) analysis. It is quite a useful approach to develop your research scope, especially in the context of policy research and case study research.

> ⓘ *An interesting research topic and refined research scope guarantee a much easier process of data collection, analysis, interpretation and research writing.*

Identification of the problem under consideration would help you to write the *statement of the problem*. A statement of the problem (or research problem) is a short description of the issue that needs to be assessed and addressed. A well-thought and well-articulated statement will set the main argument and establish the foundation of your research. To identify the research issue (and write the statement of the problem), you need to think and work on the following:

- What is to be investigated?
- Which aspect is worth exploring?
- Why is it important?
- Is the problem likely to persist?
- Challenge existing beliefs and observations!
- How substantial is the problem and the population affected by it?
- Would this research revise or extend existing knowledge?
- Is there any evidence (from others) suggesting the need for this study?

While working on it, do not hesitate to raise questions, identify gaps, challenge the existing beliefs and observations, explore different dimensions, and try new

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[20] Conducting '*Situation Analysis*' is a useful approach to develop your research scope, especially in the case of policy research; whether you intend to conduct a quantitative or qualitative study.

approaches. This will help you to define the problem (which you pick for your research) and formulate research questions (answers to which you will find through data collection and employing a research method).

Here, the application of the "*Naani* (Granny) Test"[21] is essential to avoid reaching obvious conclusions. Proper research requires months of planning, data collection, thorough analysis, and rigorous revisions for publishing results. And if, eventually, your research confirms something which is already known (even to our *Naani Jaan*), then duh! For instance, if research seeks to explore the house rent demand for small, medium, and large size houses in a locality, the obvious conclusion would be lower rents for small houses as compared to medium and large houses. Similarly, examining travel time experienced by car from different routes, analysing the correlation between heavy rainfalls and floods, or exploring happiness over weekends as compared to workdays would lead to obvious conclusions. To avoid such results, the *Naani* test must be considered consciously while working on your research scope.

Box 4.   *The Six Ws: Who, What, Where, When, Which & Why*

Giving due consideration to the Six Ws can be useful to start a research project. Following are some basic questions/considerations, answers to which can help you conceptualise the problem under consideration and formulate the research scope.

- WHO does the problem affect? Specific groups, organisations, regions, etc.
- WHAT is the problem? WHAT is the extent of the problem? WHAT is the impact of the problem? e.g., organisational, workflow, geographic, regional, segments, etc.
- WHAT would happen if we did not solve it?
- WHEN does the problem occur? WHEN does it need to be fixed?
- WHERE is the problem occurring? e.g., in certain location, multiple locations, regions, provinces, countries, etc.
- WHICH of the (existing) policies do you find relevant to the problem?
- WHY is it important to explore/assess/fix the problem?

To use this approach, just think of a research problem you want to investigate. For example, you want to study the dynamics of poverty or provision of safe drinking water in a particular area. The above six Ws will assist you to complete the initial homework.

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[21] The terminology and concept of "*Naani* Test" were borrowed from Dr Nadeem Ul Haque, the Vice Chancellor of the Pakistan Institute of Development Economics (PIDE), Islamabad

A **research question** is an explicit statement of purpose indicating what it is the researcher wants to explore.[22] Typically, your research question is derived from your topic and your methods of data collection should be derived from your research question (Kara, 2017). It is important to understand the centrality of the research question(s). Everything flows from the research question. It defines the basis of the research as it determines the population to be taken into consideration, the scope of the study, the required information to be collected, and the context of the study. Formulating clear, intelligible, and unambiguous research questions is extremely important in the research process. Hence, a clear and concisely stated research question is the most important requirement for a successful study. The whole research process revolves around the research question(s) because it guides your background research and research scope, influences your choice of research methodology, data collection and analysis approach, and directs the writing and presenting of your research findings and policy recommendations. Typically, all steps of the research process are designed and completed in such a way as to answer the research question. In other words, poorly formulated research questions would lead to a difficult, and sometimes meaningless, research journey.

There are broadly four steps in *formulating research questions*: (a) identifying concerns in the research area, (b) defining the problem that needs to be assessed and addressed, and considering variations in concerns, (c) listing all questions you find thought-provoking while developing your research idea, reviewing the literature, and refining your research objective, and (d) selecting specific research questions; must relate to the research topic, research objective, and should have some connection with established research and/or public policy. *Figure 9* presents the steps involved in formulating and selecting a research question. Each research question must be a single sentence statement, not too broad and not too narrow, and end with a question mark.

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[22] In quantitative research, you need to develop HYPOTHESES instead of research questions, depending on your research scope. By definition, hypothesis is a formal statement designed to predict the relationship between two or more variables.

Figure 9:   *Steps Involved in formulating and selecting a research question*

Research Area
Concern about the problem

Select aspects of research question(s)
Identify/ define the issue/ problem that needs to be assessed and addressed

Select aspects of research question(s)
Who are the major actors in the aid policy network in Pakistan? What resources they carry? How do donors mobilise resources to influence policy decision? How government and development partners angage in a policy game? Do donors undermine the capacity of the government to perform?

Select research question(s)
Who are the major actors in the aid policy network in Pakistan?
How do donors mobilise resources to influence policy decisions?

Research questions are not always easy to formulate. If you find yourself stuck about how to formulate research questions, it is recommended that you must read more published material on the topic. Think about personal experiences, consult your supervisor, colleagues, and policy expert, and look for a few interesting articles and assess if that research might be tested in a new setting or conducted from a new angle. In the case of more than one research question, make sure that they should be linked to each other in such a way that they collectively address the research objective.

ⓘ *Consult your supervisor/colleagues who can guide you and suggest necessary changes in the research topic considering the originality aspect, requirements of your research, and writing the scope of your research which should not be too broad or too narrow.*

Once you are done with the research problem and research questions, three important considerations are remaining that you must not ignore to complete the research scope:

- *Establish link* between your research objectives and public policy: Clearly state *why* your research is worth reading/considering; and *what* contribution your research would make to the existing understanding and public policy debate.[23]

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[23] In academic research, Conceptual Framework is considered as a key feature of the research design. It comprised of concepts, assumptions, beliefs, theories and relevance to public policy that inform your research. Here you are only required to establish link of your research with public policy. However, in quantitative research, a Theoretical Framework is an important part of the overall research scope.

- *Define boundaries* of your research! Describe in detail *what* your research will be about such as population, context, a particular aspect of an issue, time, and space, etc. This will allow you to execute your research on specific issue and/or aspect.

- *Share research limitations*: It is recommended that you should not hesitate to share the limitations of your research. It might include time and resource constraints, challenges related to access and dependence, non-availability of secondary data, or some aspect of the research you missed to include in the research scope but found it interesting enough to be included at the later stage.

3.2.   RESEARCH DESIGN

Research design is the second stage of the research process (see figure 4). It refers to the research structure of an enquiry that integrates the method of data collection and analysis of data in a coherent and logical way. In simple words, once you know what you want to research (as you would outline this in your research scope), the strategy to collect and process relevant data/information would help to describe your research design. Any study needs a well-developed research design comprised of well-thought research method(s), sampling of cases, method of data collection (e.g., questionnaire, observation, document analysis), and data analysis approach (e.g., content analysis, thematic analysis, narrative analysis). This enables a researcher to meet the research objectives, find answers to the research questions, and systematically address the research problem.

> ### Box 5.   Research design—Example
>
> Imagine you intend to buy a piece of land for building a house. Before you start the construction, you would need to have a detailed execution plan, map (floorplan) of the house, and assessment of available resources. For this project, you would think about a detailed layout of the house. You would need to know about the types of input required (such as labour, building material, and time). And you would also need to assess the money it would cost you to complete the house. Once you calculate these things, only then you would be able to execute the work in an efficient manner.
>
> Similar is the case with a research project. Before starting the fieldwork/data collection, you need to have a clear research scope and a comprehensive research plan that would guide your research process till the end. These are important considerations to be taken at the very beginning since it would cost you a lot more time and other resources (including money) at the later stage otherwise.

The importance of this stage cannot be ignored since negligence might cost you time and/or revisions at the later stage of the research process. It is to understand that the research scope (in particular, the research question) determines the type of research design a researcher should adopt, not the other way around. However, an early decision about the preferred research method(s), data collection approach(es) and analysis technique(s) is highly recommended. For more details about the types of research methods and their use, please refer to '*Section II: Research Methodology*' of this book.

Figure 10:   Contents of a research design

Research Methodology	Sampling Technique	Data Collection	Data Analysis
Quantitaive; Qualitative; Mixed Methods; Case Study	Probability and Non-Probility Sampling Technique	Secondary and Primary Data Collection	Secondary and Primary Data Analysis
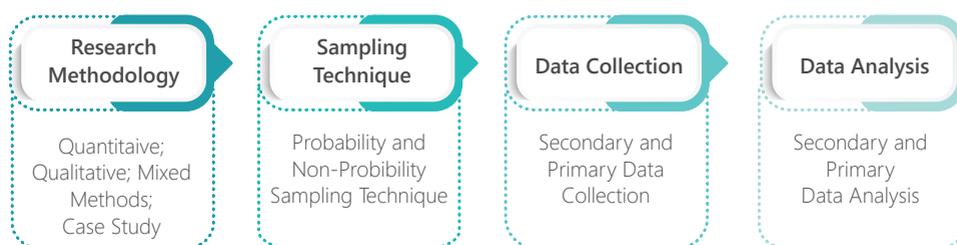
This section provides guidelines about formulating the research design that includes adopting the research method, choosing the sampling technique, selecting a method of data collection, selecting a data analysis approach (*see figure 10*), and managing time and resources.

3.2-A. Adopt Research Method

In Part II of this book, a detailed orientation of the research methodology is presented. That includes a distinction between quantitative and qualitative research, case study research, action research and evaluation research methods. To carry out a research study, the research design demands a decision to adopt a holistic research methodology. As Clough & Nutbrown (2007) suggest that methodology requires researchers to justify their research decisions, from the outset to the conclusion of their enquiry. A good research design entails coherence between the research scope and the research methodology. Research design and research method are often used as synonymous but are distinct terms. Research design represents a structure that guides the execution of a research method and the analysis of the subsequent data (Bryman, 2012).

Once you know *what you want to find out* (as you would outline this in your research scope), the methodology about *how you will get that information* would help to describe your research design. For instance. if structured (numerical) information is required to answer the more mechanistic 'what' question, quantitative research methodology seems the right approach. By contrast, if an in-depth and contextual understanding is required to answer 'why' and 'how' questions, then qualitative research methodology is recommended. Similarly, if you want to conduct a detailed, intensive, and context-specific analysis of a case (or phenomena/situation in a policy process) to develop a holistic understanding of a subject, the case study research – often a mixed methods approach – would be the most appropriate methodology.

In simple words, choose a method that is *appropriate* to your theoretical approach, the subject you want to explore, and the participants (or respondents) you want to include, enables you to collect the type of data required considering the available resources and timeframe. The judgement about the appropriateness of your research methodology to answer the research question is based on certain rationale and reasoning of research methods. For instance, if you want to examine the trend (expressed as numbers/percentages) of the population living below the poverty line over a certain period then a quantitative method (using primary or secondary data) would be sufficient. By contrast, if you wish to examine the causes of poverty or why some proportion of the population remains poor for generations, then you may adopt a qualitative method to gather rich data that would help you to dig deeper. Similarly, if you want to assess the trend in school enrolments or the number of patients treated in a hospital, the quantitative method would be the right approach. However, if you wish to examine the reasons for high/low school enrolments in a particular location or explore the patients' hospital experience, then a qualitative method would help you collect and process data that would help you to answer your research question. '

ⓘ *You must describe in detail your 'research methodology' in your research proposal and justify why the proposed method was considered appropriate to answer the research question(s) posed in your study. Appendix 2 presents how to write a good research proposal.*

Once you decide which method(s) would be most suitable to answer the research question, the next important thing to look for is the required data/information.

Depending on the availability of data, you will have to decide whether you need to collect primary data, secondary data, or both. In the case of primary data requirement, you need to work on a 'sample' before data collection.

3.2-B. Choose a Sampling Technique

Sampling is a process of selecting units[24] from a target population and/or policy sector of interest (see *figure 11*). Since studying a whole population (or policy sector) is highly unlikely due to time and resource constraints, a (representative) sample helps to study phenomena which fairly allows to generalise the results back to the population and/or generate knowledge about the problem under examination. The selection of the sample depends on the research objective. Some researchers select samples to maximise in-depth contextual understanding while others are concerned to make inferences about a whole population using a representative sample. In the latter case, the decision about the sample design demands *probability (random) sampling* to study a larger sample (mostly used in quantitative research), while in the former case it requires *non-probability (non-random) sampling* to study a smaller sample more intensively (commonly used in qualitative research).

Sampling is primarily required if your research design includes collection and analysis of primary data. If your research design seeks to collect and analyse secondary data or document analysis, then you may skip sampling from your research design. Nevertheless, it is important to identify/cite the source and authenticity of secondary data. For primary data collection, once you have defined/selected your research population, there are two important considerations underlining sampling: sampling approach and level of sampling.

Figure 11: Sample of a population

- *Sampling approach* denotes whether you need to collect primary data using a probability sample (for quantitative research) or a non-probability sample (for qualitative research).

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[24] *Unit* is the type of object of interest, e.g., individuals, actors, households, universities, cities, firms, etc. The term unit is used because it is not necessarily people who are being sampled.

- *Level of sampling* refers to the context of a sample (e.g., location, group, entities) and sample units (individuals, actors, households, organisations).

Box 6.   *Understand terminologies related to sample*

POPULATION: The universe of units from which the sample is to be selected.

SAMPLE: The segment (or sub-set) of the population that is selected for investigation.

SAMPLING FRAME: The listing of all units in the population from which the sample will be selected.

REPRESENTATIVE SAMPLE: Sample that reflects the population accurately so that it is microcosm (or DNA) of the population.

SAMPLE BIAS: A distortion in the representativeness of the sample that arises when some members of the population stand little or no chance of being selected for inclusion in the sample.

CENSUS vs SURVEY: Census is the complete enumeration of all members of an entire population, while Survey involves large number of respondents chosen through probability sampling. Systematic questionnaire/interview procedures are employed.

SAMPLING ERROR: Error in the findings deriving from research due to the difference between a sample and the population from which it is selected.

NON-RESPONSE: A source of non-sampling error that is particularly likely to happen when individuals are being sampled. It occurs whenever some members of the sample refuse to cooperate, cannot be contacted, or for some reason cannot supply the required data.

Probability sampling (also known as random sampling) primarily involves a random selection approach in order to draw a representative sample and generalise results back to the population. In this sampling technique, the *subjects* (units of the population) have an equal chance/opportunity to be selected in the sample. Some popular probability sampling techniques[25] used include simple random sampling, systematic sampling, cluster sampling, and stratified sampling.

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[25] For more details, see Bryman (2012 & 2021) and Kara (2017) or search and read online/published material on probability/random sampling.

The **simple random sampling** is a basic probability sampling technique in which a representative sample is drawn from a population (see *figure 12*). The sampling frame includes the whole population from which a required sample will be drawn randomly. In this technique, each member of the population has an equal chance to be selected in the sample. For example, you want to select a sample of 1,000 (10%) enrolled students from a university of 10,000 students. You will take the students list, assign each student a number from 1 to 10,000 and select 1,000 random students from it: just like a lucky draw.

Figure 12: Simple random sample
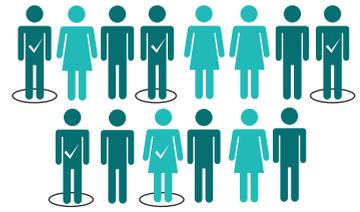
The **systematic sampling** is a probability sampling technique in which a sample is drawn from a population with regular intervals (see *figure 13*). The difference is that instead of selecting members randomly (like in a simple random sample), researcher would start selecting the sample randomly and then will pick members at every certain fixed interval. For example, you want to select a sample of 1,000 (10%) enrolled students from a university of 10,000 students. You will take the students list, assign each student a number from 1 to 10,000, you select the first student randomly (let's say student #07), and then pick every 10th student (17, 27, 37 and so on) from the list.

Figure 13: Systematic sample
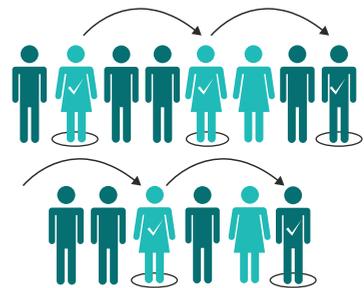
Stratified sampling is a more sophisticated probability sampling technique used to draw a representative sample from a population. In this technique, the population is divided into several sub-groups (called *strata*) based on certain characteristics such as age, sex, employment status, income, assets etc. Considering the proportion of each strata in the population, the sample will be drawn randomly ensuring that every sub-group is properly represented in the sample (see *figure 14*).

Figure 14: Stratified sample
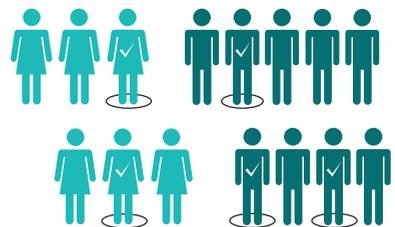
For example, you want to select a sample of 1,000 (10%) enrolled male and female students from a university of 10,000 students. You take the students list and sort the population into two sub-groups (strata); male and female. The list indicates that there are 6,000 (60%) male students and 4,000 (40%) female students. Then using a simple (or systematic) random sampling approach, you select 600 (60%) male students and 400 (40%) female students from the list. This will give you a gender-based representative sample from the university students' population.

Cluster Sampling is another type of probability sampling technique which is often used to collect information from (and study) a large population such as national or sub-national level surveys. In this technique, sub-groups of similar characteristics (called *clusters*) are created within the population. Unlike stratified sampling

Figure 15: Cluster sample

technique in which representative proportionate of members from each sub-group were selected randomly, a whole cluster is randomly selected (see *figure 15*). This is followed by including every member/unit from the cluster or selecting members/unit from each cluster using simple random sampling, systematic sampling or even stratified sampling depending on the sampling design. Adoption of such an approach is called *multistage sampling*. For example, you want to study the beneficiaries' (inpatients) experience related to hospital facilities in 10 cities of Punjab province (providing similar healthcare services). You do not have enough resources to visit every hospital in the province. So, you would select three cities (clusters) and study inpatient healthcare services in stratified secondary and tertiary hospitals.

Non-probability sampling (also known as non-random sampling) has a non-random selection criteria in which all members of the population do not have a chance to participate in the study. Sampling techniques under non-probability sampling revolve around the notion of purposive sampling. In this sampling technique, the selection of units is subjective to the requirements of the research; units do not have an equal chance/opportunity to be selected in the sample. Purposive sampling technique is preferred when a specific (limited) number of individuals, groups or entities carry the most relevant information that is sought. Adopting this technique allows the

researcher to select the most productive sample to answer the research questions. It involves individuals who are best placed in the system to provide the required information based on their expert knowledge and position in the system.

The **_purposive sampling_** essentially involves selection of sample cases or participants with a purpose, keeping in view that the sample must be relevant to the research inquiry (see *figure 16*). Such an approach may enable an in-depth exploration of the subject. Since it is a non-probability technique, the sample is not representative enough, hence the results cannot

Figure 16: Purposive sample

be generalised to a wider population. Although the cases are selected in a non-random manner, the sample selection is based on particular characteristics or features in which the researcher is interested. For instance, to study the role of foreign aid in Pakistan's economic development, you may want to select and interview senior officials/experts involved in managing foreign economic and technical assistance. For this, you may look for potential participants from the government (ministries, departments), donor community (leading multilateral and bilateral donors), development partners (INGOs, NGOs, CSOs), and some from the civil bureaucracy, academia, policy experts and politicians.

Convenience sampling (also known as availability sampling) is a non-probability sampling technique in which subjects or units are selected based on convenient accessibility and proximity to the researcher (see *figure 17*). A convenience sample is simply available by chance to the researcher. Units are not purposefully or strategically selected. This technique features quick, easy, and low cost. For example, a news reporter walking on the street, asking questions, and recording responses of people available there by chance.

Figure 17: Convenience sample
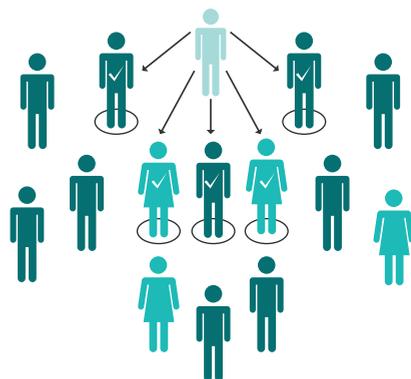
Snowball sampling (also known as chain sampling or referral sampling) is a non-probability sampling technique in which a small group of participants, relevant to the research inquiry, is sampled initially. These sampled participants are approached for the collection of data and then asked to identify other participants carrying similar characteristics, or someone they recommend as a useful potential respondent, relevant to the research (see *figure 18*). These respondents will guide the researcher to other relevant

Figure 18: Snowball sample

respondents, so the sample grows like a *rolling snowball*. For example, you wish to study the experiences of medical surgeons in the operation theatre. You identify a few qualified surgeons you can access easily and talk to, but then you would ask them to identify or refer you to their colleagues in other medical centres who carry similar characteristics, such as expertise and experience, and are willing to participate in your research.

To select a representative sample, the **quota sampling** technique is used to select a sample consisting of the same proportion of individuals as the entire population keeping in view the same characteristics and traits (see *figure 19*). To draw a sample using this technique, you first need to divide the population into exclusive sub-groups. Calculate the proportion (*quota*) of each sub-group in the population and apply that to the

Figure 19: Quota sample

population to generate a representative sample. For example, in a neighbourhood, every 'one out of four' is a senior citizen. So, the quota for the senior citizen population (based on age criteria) in the sample would be 25%. Although the quota sampling approach seems similar to the stratified sampling technique, the former relies on the random selection of units within each sub-group, while the latter relies on convenience sampling within each sub-group. Although the selection of cases is made on a non-random basis, some scholars consider this approach as good as
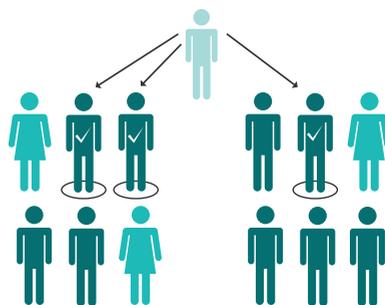
probability sampling. This technique also allows the researcher to study the perceptions and behaviour within each sub-group. Since quota sampling leads to time and resource-intensive research, this technique is recommended for small-scale studies, not for the wider population.

When developing a purposive sample (or quota sample), the technique demands that you must think critically about the parameters of the target population, use your special knowledge and expertise, and pick sample cases carefully. You need to be clear about the criteria to be used for the inclusion or exclusion of participants (or unit of analysis)! These sampling methods are preferred over other qualitative techniques to avoid selectivity bias as convenience sampling or snowball sampling.

Determining Sample Size

Selecting an appropriate **sample size** *(n)* is essential to ensure the representation of diversity in the population, the precision of estimates (results), and accuracy in inferences. To get a fair picture of the whole population, there should be a balance between the breadth and depth of data and available resources. The sample size must not be too small or too large. In the former case, it may skew the results due to a disproportionate number of individuals who are outliers. In the latter case, it would become complex, expensive, and time-consuming to collect and process the data despite that the results can be more accurate.

In probability (random) sampling, before calculating the sample size, you need to consider the population size, confidence interval (margin of error), and standard deviation, and calculate your z-score. Once you have all these, use the sample size formula, or simply use online sample size calculators to determine the sample size.[26] For example, for a population of 10,000 university students, with a 95% confidence level and a 5% margin of error, a representative sample size of 370 should be enough statistically.

You may find a lot of information overload and knowledge conflict in the literature when it comes to determining an appropriate sample size in non-probability

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[26] Multiple online resources are available to calculate the (probability) sample such as Calculator.net: https://www.calculator.net/sample-size-calculator.html (accessed on 11.10.2022)

(non-random) sampling techniques.[27] Scholars suggest that any number of interviews between 4-12 should be alright in the case of a homogeneous population while these can be increased to 20-35 in the case of a heterogeneous population. However, these numbers should be increased further in the case of ethnographic and/or grounded theory research. Nevertheless, the principle of *saturation* is often used in qualitative research to determine when there is adequate data from a study to develop a robust and valid understanding of the study phenomenon (Hennink et al, 2019).[28] Data saturation is the point when there is a saturation of information – you would notice that the same themes and issues are highlighted repeatedly and there is no new information to be discovered in data collection/analysis (Faulkner & Trotter, 2017).[29] This is the moment when you can claim that you have collected enough data to answer your research questions, and that's when you need to stop collecting data any further.

3.2-C. *Select Method of Data Collection*

At the design stage, the researcher must identify the type of information – documents, published material, official statistics, primary and/or secondary (quantitative and/or qualitative) data – required to answer the research question convincingly. The most important consideration in the selection of an appropriate method is *where the required data exist* such as policy documents, research reports, official correspondence and proceedings, official statistics, or carried by specific communities, households and/or individuals. The second consideration is *how to access* and/or record that required information.

In the case of **secondary data collection**, you may need to seek access to the data files owned by a respective organisation for example education enrolment, child mortality rate, crime incidence, or survey data published by think tanks and/or official statistics organisations. It is important that you should consider the following criteria while selecting your secondary data:

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[27] It is primarily because most of these techniques include an element of subjective judgement, that can be heavily biased and hence difficult to validate the accuracy of results.

[28] Hennink, M.M., Kaiser, B.N. & Weber, M.B. 2017. What Influences Saturation? Estimating Sample Sizes in Focus Group Research. *Qualitative Health Research,* Vol 29, Issue 10, pp. 1483-1496.

[29] Faulkner, S. & Trotter, S.P. 2017. Data Saturation. In J. Matthes, C. Davis & R.Potter (Eds). *The International Encyclopedia of Communication Research Methods.* John Wiley & Sons, Inc.

- *Reliability of the source*: should be hosted/published by a known reputable organisation.

- *Quality of data*: should have adequate coverage/rich discussion available related to specific data set.

- *Relevance of data*: should carry relevant information to answer your research questions.

- *Credibility of data*: should be validated, if required.

In the case of **primary data collection**, you would need to draw a sample from the target population and get close to the sample to be able to record the first-hand information (primary data). Two considerations would be required: (a) selection of probability or non-probability sampling technique, and (b) selection of the level of sampling (context and participants of your research). These considerations will help you to choose the most appropriate method of data collection.

ⓘ *Primary data collection is not compulsory for all types of research studies. For instance, if you plan to do a desk study such as document analysis, you will skip this step from your research plan.*

Once the type and sources of information required are known, the selection of data collection method (or instrument)[30] should be selected and designed. The research design would be incomplete without knowing what method will be used to collect the required information. The decision about the selection of data collection methods primarily depends on the research question of your study, but it may also be influenced by the research design such as context, strategy and timing of the study. A more detailed discussion on data collection is presented in '*Section 3.3: Data Collection*' of this book.

ⓘ *In your research, you must describe in detail the 'method of data collection' selected to collect the primary data and elaborate on why the proposed method was considered appropriate to meet the research objective of your study. In the case of secondary data, justify the selection of type and source.*

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[30] Such as survey (structured) questionnaire, semi-structured questionnaire, topic guide interview or focus group discussion. These instruments are discussed in '*Section 3.3: Data Collection*' of this Book.

3.2-D. Choose Data Analysis Method

Analysis of data plays a crucial role in reaching conclusions and stating recommendations. At the research design stage, before proposal submission, the researcher needs to select and specify the method to analyse the data. There are several methods to analyse the data depending upon whether the data were secondary or primary, as well as whether the method(s) adopted is qualitative or quantitative. For instance, common methods of analysis in quantitative may include distribution, correlation analysis, statistical significance, analysis of variance (ANOVA), and regression, while thematic analysis, content analysis, discourse analysis, grounded theory, and conversation analysis are commonly used in qualitative methods. A detailed discussion of the secondary data analysis and primary data analysis is presented in '*Section 3.4: Data Analysis*' of this book.

ⓘ   *In your research, you must describe in detail the 'data analysis method' selected to process the data and elaborate on why the selected method was considered appropriate to meet the research objective of your study.*

3.2-E. Manage Time and Resources

Most research activities are constrained by time, access to data and resources at hand. There is no point in working on a research topic (or project) that you cannot complete in the given time and with available resources. It does not mean that research assignments cannot be conducted and completed in a given timeframe. It is therefore recommended to work on managing your *time* and assess what *resources* are available to you.

ⓘ   *You can always amend your research scope and make necessary changes in the research design before proposal submission. So, do not invest too much time and energy in finding a perfect research idea at the very beginning of your research. This will evolve and be refined as you go through the steps in a research process.*

Figure 20: *Gantt chart of a research project (16 weeks' timeline)*

To manage the time, it is recommended that you should work out the *timeframe* at the outset of your research assignment. The timeframe should indicate all the different stages of your research, and the weeks/dates each activity would start and finish. For this purpose, Gantt charts are quite useful. *Figure 20* presents a sample *Gantt chart* (timeframes) of a research project, to be completed in 16 weeks. You can add more details (tasks) under each heading and keep updating the '*to-do list*' for a more effective execution of your research. Once you generate the timeframe of your research, it is essential that you should monitor the progress on a weekly basis so that there is an early warning of slippage.

It is of foremost importance to know what *resources* are available to you, and whether they are at your disposal or not. For instance, time, access to workstation, printing, photocopying, stationary, telephone, recording equipment, and funding. These will enable you to establish how financially feasible and practical your research design would be. In addition to these, it is suggested that you should also work on the human and intellectual support aspect.

ⓘ *Try your level best to formulate a convincing and well-planned research design keeping in view your research question(s) and methodology adopted. From an examiner's point of view, the research design (or methodology) section of your research proposal/research paper would be the most crucial part. A well-designed methodology confirms the validity, reliability, and credibility of any research.*

3.3.   DATA COLLECTION

Data collection is the third stage of the research process (*see figure 4*). This is a critical stage of the research process in collecting the information needed to answer the research question. **Data** mainly include numerical values (*quantitative data*) and textual records (*qualitative data*). It can be raw information (*primary data*) or presented as facts and figures (*secondary data*). Processing of data leads to the generation of knowledge and understanding of the phenomena under examination. See *figure 1*, data processing and decision-making.

3.3-A. Secondary Data Collection

Secondary data are a type of data that has already been collected, processed, and published by someone else for a purpose other than yours. For studies in which secondary data are required to answer the research question, researchers need to:

a) identify the *type*, such as documents and/or official statistics,

b) *locate* the data, knowing the source of data and access options,

c) evaluate the *relevance* of data, considering background details of data such as population, sample size, time of data collection, collection mode, questions asked, and form of data, and

d) assess the *credibility* of data, exploring if the data were collected, processed, and used by credible published research and whether it can be validated.

Secondary data collection is time and cost-effective as compared to the primary data which requires a lot of effort, time, and finances. The secondary data may be of higher quality, depending on the sampling technique, size, and statistical precision, and may contain a wide variety of variables such as official statistics and/or documents. By contrast, the researcher has no control over its quality, the data may not help to address a particular research question or lack depth and knowledge about the survey strategy.

There is an abundance of *data sources* available on most of the mainstream topics such as the population census, Pakistan social and living standards measure (PSLM), national

accounts, social statistics, agriculture statistics and labour force survey of the Pakistan Bureau of Statistics; Pakistan economic survey of the Ministry of Finance; status of public sector development expenditure of the respective planning ministry/departments; foreign economic assistance data of the Economic Affairs Division; world development indicators of the World Bank; human development index of the UNDP, etc. Similarly, documents as sources of data may include government policy documents, policy papers, research reports, hospital records, memorandums, diaries, transcriptions, photographs, letters/communication records, minutes of meetings etc.

3.3-B. Primary Data Collection

Primary data collection needs different methods to collect quantitative and qualitative data. The **quantitative data collection** methods aim to collect numerical values using a structured questionnaire with closed-ended questions.[31] The **qualitative data collection** method records non-quantifiable observations such as words, behaviour, feelings, etc., using a semi-structured or unstructured interview schedule (or topic guide). The choice of quantitative or qualitative methods of data collection depends on the scope of your research. Nevertheless, it needs a lot of preparation: instrument development, piloting, and resource management. *Figure 21* presents four steps involved in the primary data collection process.

Figure 21:   Primary data collection process

Develop Instrument	Plan Fieldwork	Conduct Fieldwork	Data Management
What, Why, How? Theme/sub-themes. Piloting	Research site & participants; Assess access & feasibility; Plan travel and logistic	Negotiate acces; Intro & confidentiality policy; Audio recordings & field notes; Time management	Manage status file; Secure data files; Document the data
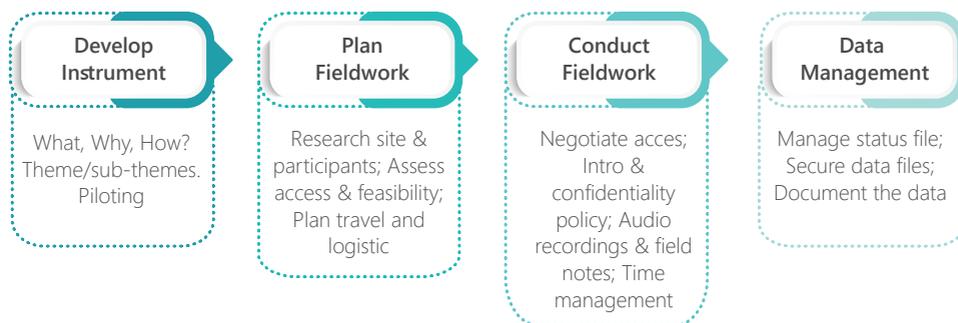
In studies involving primary data collection, researchers need to develop a well-thought data collection instrument such as a questionnaire, interview schedule or

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[31]   *Closed-ended questions* require a straight and simple response such as binary answers (yes/no or agree/disagree) or choosing option(s) from a range of options and rank/rating options. *Open-ended questions* need more thought which require more than a simple one-word response.

topic guide.[32] This is the first step of the data collection process. **Interviews** are the most widely used method of data collection. Three major categories of interviews can be identified. (a) the ***structured*** (formal or standardised) interview is similar in format to a 'pencil-and-paper' survey. It is designed to collect standardised numerical data in large surveys using closed-ended questions. The Census data and other statistical data such as PSLM and LFS by the Pakistan Bureau of Statistics (PBS) are collected through structured questionnaires.

Table 3: Types of Interviews		
STRUCTURED INTERVIEW	**SEMI-STRUCTURED INTERVIEW**	**UNSTRUCTURED INTERVIEW**
Used to collect Quantitative data	Used to collect Qualitative (and Quantitative) data	Used to collect Qualitative data
Instrument: Survey Questionnaire	*Instrument:* Interview Schedule	*Instrument: Interview Schedule / Topic Guide*
Data collection mode: Survey, Census, Online Survey	*Data collection mode:* Face to Face Interview, Fieldwork, Online Survey	*Data collection mode:* Face to Face Interaction, Focus Group Discussion, Observation
Interviewer follows scripted questions; No deviation from question order. → Closed-ended questions	Asymmetrical structure; Questions may be reordered during the interview; → Both open and closed-ended questions	Completely unstructured; Free-flowing conversation; No set order to any question; → Open-ended questions
Each question is asked exactly as written	Interviewer initiates questions and poses probes in response to Interviewee's descriptions	Both interviewer and interviewee initiate questions and discuss topics
No adjusting of the level of language	Level of language may be adjusted	Level of language may be adjusted
No clarifications or answering of questions about the interview	Interviewer may answer questions and make clarifications	Interviewer may answer questions and make clarifications
No additional questions may be added	Interviewer may add or delete probes to interview between subsequent subjects	Interviewer may add or delete questions between interview

Source: Modified and amended from Berg, B. L. (2004).

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[32] *Questionnaires* are used in survey research to collect quantitative data, while *Interview Schedules* or *Topic Guides* are the formats used in the fieldwork to collect qualitative data.

(b) the **unstructured** (informal or unstandardised) interview comprises a '*topic guide*' including a list of themes, sub-themes, and issues to be discussed in a free-flowing discussion with an individual or group. In addition to this, *focus group discussion* (FGD) allows researchers to explore a situation/ phenomenon in-depth (with a smaller group) in a specific context, hence provide rich contextual description and analysis. These are more useful in qualitative research exploring perceptions, behaviours, and patterns of interaction in a social setting. (c) the **semi-structured** (semi-standardised or focused) interview is a mix of both structured and unstructured interviews. It mainly consists of both closed and open-ended questions, and topics. This helps to record the quantitative and qualitative information from the target population. Although semi-structured interview is used quite commonly these days since it is flexible enough to account for a range of responses generating rich descriptions, it is a time-intensive method (negotiating access, conducting interview, data management) that requires considerable knowledge, communication, and time management skills on the behalf of the interviewer. Distinctions between these three types of interviews are presented in *table 3*.

Formulating the interview questionnaire is a thoughtful process. You should consider: 'what do I need to know to answer the research question?' Try to ask simple, easy-to-understand, short and straight questions. Do not use jargon or technical language as not all participants (or respondents) are familiar with these. Phrase each question in a way that only one meaning is possible. This means that all respondents should have the same thing in mind when answering the question. Include the most relevant questions only. Do not get excited or curious to include every question you can think of. If necessary, you may add cross-check questions to verify responses to other questions. Avoid asking leading questions which suggest what the required response might be. Avoid asking negative questions as they are easy to misinterpret. Avoid including offensive (or insensitive) questions which could cause awkwardness. Do not ask questions which are nothing more than just a memory test or require calculations. Keep your questionnaire as short and simple as possible but include all the questions required to serve your purpose.

It is always desirable to test the instrument (questionnaire) prior to conducting the survey/ fieldwork so that any limitations could be addressed, or desirable changes are

made in advance. This testing is called *piloting*. The main objective of piloting is to observe whether the questions asked were clear and understandable to the participants, flowed well in the discussion, and allowed the researcher to collect the required data. Also consider: is the respondent able to answer the question and/or is the respondent comfortable enough to answer the question? Record how much time it would take to complete an interview. All these considerations would help you to revise and finalise the questionnaire.

ⓘ *It is suggested that you organise your questionnaire/interview thematically (in different sections) and arrange questions in a flowing discussion order. This will help you to conduct the interview efficiently and enable you to manage the raw data for further processing (analysis).*

Once the interview instrument is ready, **planning the fieldwork** is the second step of the data collection process. Several considerations are required here. It is suggested that you must research the site of your data collection: explore the locality, connectivity, facilities, language, social and cultural norms, history and politics, and climate. You are also required to research your participants (or respondents) such as explore their background, expertise, and their social/professional networks. This will help you to probe and collect in-depth information keeping in view their experiences. Finally, evaluate the feasibility of your fieldwork such as calculating time and resources, and planning travel and logistics.

ⓘ *It is expected that your fieldwork might take a longer duration and require more resources than you planned. So, do think about a contingency plan beforehand.*

The next step is to **conduct the fieldwork**. The biggest challenge here is to negotiate access to a social setting such as an office or household. Access refers to the ability of the researcher to get close to people and situations, to be able to find out what is happening below the rhetoric. *Negotiating access* is most difficult in the case of expert interviewing.[33] Arranging interview sessions and conducting face-to-face interviews with experts is often quite challenging. In such scenarios, to negotiate access, you may want to send a formal request for an interview to the potential research participants. An *approach letter* and the *participant information sheet* would be required to approach your participant.[34]

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[33] In *Expert Interviewing*, the interviewees are of less interest as a person than their knowledge and capacities as an expert in a specific field of activity.

[34] The Participant Information Sheet describes the purpose of the study, areas covered in the research, a request for a face-to-face/online interview, and clearly stated policy on anonymity & confidentiality.

ⓘ *Experts/senior officials are quite busy individuals and often have tight schedules. It may be quite challenging to convince them to schedule an appointment. You may face a lack of interest from some officials. Some might turn down your request straightaway, while others may delay scheduling an interview and later stop answering your phone calls or emails. It is therefore suggested that you should utilise your contacts in the network to facilitate the process. In qualitative research, you may want to replace cases (participants) using the snowball sampling technique, even when you have chosen your initial sample purposively; purposive-snowball sampling. Do indicate this in your methodology.[35]*

Conducting an interview for the first time may not go according to plan. It might be because you encounter an unexpected interview behaviour or environmental (vicinity) problem such as interviewing in a coffee shop or a busy office. You may find it difficult to manage time to complete the interview since you have to take field notes and manage the transcription which is time-consuming. Here it is recommended that you use the audio recorder with the consent of your participant. Further, you might find it challenging to maintain focus in asking questions and hence lose control of the flow of discussion. And you may experience tense interactions while dealing with sensitive issues or certain imposition of your own biases and expectations while asking or probing questions.

Keeping these in your mind, the following are some tips that will help you to plan and conduct interviews. *Before the interview*, it is recommended that you establish formal contact with your potential participant through an approach letter/information sheet and negotiate access (date/time/ place of interview). Once the access is granted, send a friendly reminder before the interview and be there on time. There is no harm in sharing your questionnaire/interview schedule with your respondents beforehand. This will help the respondent to get prepared for the interview and ask for any clarification if required. *During the interview*, your first task is to involve the respondent in the interview ASAP. At the outset, explain the purpose of the interview and start with an open question allowing your respondent to speak freely. Always ask questions about the present before questions about the past or future. Ask one question at a time and be patient! Tolerate pauses. You should attempt to remain as neutral as possible during the discussion. Encourage responses and explanations. Listen actively to what is said and how it is said. Remember that you are steering the interview so do not lose control of the interview. If possible, use an audio recorder

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[35] Published material and online resources are widely available on interviewing skills and techniques.

with the consent of your respondent – this will enable you to manage the time and help concentrate on the discussion rather than taking notes. Finally, always ask for 'any other information' at the end of your interview. Do not forget to thank your respondent for his/her time and cooperation and promise a copy of your results.

> **Box 7.   Asking questions: Kinds of questions**
>
> - Opening questions – Tell me about...?
> - Investigating questions – Can you elaborate on your answer? (what do you mean...?)
>   Probing questions – Could you say something more about that?
> - Specifying questions – How did 'X' react to your response?
> - Direct questions – Are you happy with your married life?
> - Indirect questions – People say... Is that the way you feel too?
> - Structuring questions – I would now like to move on to a different topic.
> - Silence – Allow pauses to signal that you are giving your respondent the opportunity to reflect and develop an answer
> - Interpreting questions – Do you mean to say that...? (Verify interpretation)

After the interview, the first thing you should do is compile/complete your field notes. Write down observations made during the interview. If you were using the audio recorder, verify if it worked throughout the interview session. Update your records (and backup) and maintain a 'status file' that must include the interview code, access details (how and dates), interview (date, time, location, duration), transcript (audio, video, field notes), and remarks (if any).

Although, unlike structured interviews, a *sequence of questions* is not required in unstructured and semi-structured interviews, arranging questions in a certain order would facilitate smooth discussion. In the beginning, it is recommended that you ask more straightforward questions the respondent would enjoy answering. Ask questions which are relevant to the stated purpose of your study. Place difficult questions and complex topics towards the middle of your interview schedule; the time when you and your respondent are deeply involved in discussion. If necessary, always ask personal and sensitive questions towards the end of your interview, and clearly explain the intention. Nevertheless, it is important that you group questions in

thematic sections for smooth discussion and so that they make sense to the respondent.

Audio recording is often recommended during the interviews with the consent of the respondents. However, *field notes* can be used where the respondents refuse to give consent due to whatever reason. A recording is used to promote accuracy and detail in transcripts. Interviews without audio recording take longer duration and are of lesser quality as compared to the audio files; since writing notes sometimes led to losing concentration, missing interesting points, or capturing exact phrases and language (quotes) used by the respondents.

Apart from one-to-one interviews, **focus group discussions** (also known as *group interviews*) are also used to collect qualitative information. There are several participants from similar backgrounds and experiences (mostly 8-12 individuals) in a FGD who are invited to discuss a specific topic of interest. FGD encourages the participants to express their views freely in an interactive manner. The FGD is led by a moderator (interviewer) who steers the group discussion and a notes taker (secretary/assistant) who records the responses. This method of data collection allows us to develop an understanding of why people feel the way they do. It is a relatively quick way to collect data that also saves time and money. FGDs are often used to understand (or interpretation of) the results of large quantitative studies. However, FGDs are difficult to organise, and the interviewer may have less control over the proceeding as compared to one-to-one interviews. Similarly, responses in FGD may not be as rich and in-depth. A common challenge for the moderators is to get all the participants to speak otherwise the discussion can be dominated by one view and some participants may not engage/ participate. Nevertheless, FGDs are not always appropriate for sensitive subjects such as religion, politics, beliefs etc. That is why the skill of the moderator is crucial to organise and conducting the FGD.

Although **data management** is the final step of the data collection process, it begins as the fieldwork starts. It is simply an organisational process. Data management means that the researcher must check whether there are any obvious flaws in the information collected. It is suggested that a *status file* must be developed to keep a track record of every conversation and commitment during the fieldwork – such as

invitation letter, follow-up telephone call, email reply, interview schedule status, date and time of the interview, and the location of the interview. Data management requires *documenting the data*. This includes recording the data, transcribing the (qualitative) data, and summarising the data in such a way as to construct a new reality (Flick, 2009).[36] Data files must be saved and organised in separate folders according to sample groups.[37] This will allow the researcher to track the data file/transcript for further cross-referencing and analysis.

Table 4: Coding schema (sample)		

THEME
    Sub-Theme(s)/Categories
	CODE
	    Sub-code(s)
		NODE (NVivo)

QUALITY OF TEACHING	QT	1.1
Teaching faculty	*QT-Fac*	*1.1-A*
Teaching material	*QT-Mat*	*1.1-B*
Teaching facilities/tools	*QT-Tol*	*1.1-C*
Teaching mode/methods	*QT-Mod*	*1.1-D*
ONLINE LEARNING EXPERIENCE	OLEx	1.2
Class engagement	*OLEx-CEng*	*1.2-A*
Q&A	*OLEx-QA*	*1.2-B*
IT support	*OLEx-IT*	*1.2-C*

The process of **coding** is an essential first step in the analysis of primary data. Coding is the operation by which data are broken down, conceptualised, and put back together in a new way. Coding in qualitative research is a somewhat different process from coding in relation to quantitative data. With the latter, coding is solely a way of managing data using a statistical programme; whereas, in qualitative data analysis, coding is an important first step towards the generation of theory.[38] In qualitative research, the *coding process* begins with the text, coding categories, and moving on to

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[36] Summarising means synthesising the information collected in the interview such as recording the data, writing up interview notes as soon as possible, identify key responses/issues highlighted by the majority, capture verbatim quotes, and group similar results under themes/sub-themes.

[37] Give a unique reference number to each file. For example, give a unique eight-digit reference number 'GG-UU-RR-QQ' to each data file (interview transcript). GG refers group number, UU refers unit number in each group, RR refers to respondents from each unit, and QQ refers to participant/ interview number.

[38] For more details, see Bryman (2012 & 2021), Flick (2009), and Kara (2017).

identify trends and themes. The purpose of this is to simplify the transcript data and to achieve a simple conceptual outline. *Table 4* presents a (coding) schema of a study about the quality of teaching and online learning experience.

Initially, the data is to be transcribed and reviewed line by line. A close reading through the transcripts would help to identify themes or categories to which the data are related, and which are relevant to the research focus. It is necessary to evaluate and explore the data in relation to the distribution of opinion across groups and individuals; groups often carry different opinions and viewpoints. It is critical to capture these distinctions in order to explore the dynamics of the social setting. Besides this, the interview questions and conceptual framework can also be used to generate several pre-existing themes, subthemes, and codes. After the data are collected, managed, and coded, you will be ready to proceed to the next step of the research process: the data analysis.

3.4. DATA ANALYSIS

Once the data are collected, it is time to work with data to produce results. Broadly speaking, the **data analysis** stage is about data reduction. Without reducing the large volume of gathered information, it is unlikely to interpret the material, make sense out of it, and generate knowledge for better understanding.[39] The consideration in data analysis is that it refers to the analysis of either primary or secondary data. In the latter case, the analysis may include document analysis and/or analysis of official statistics. Although this remains a challenging stage of the research process, it is also exciting considering the raw information is to be transformed into facts and knowledge, revealing new understandings. This section provides instructions about conducting secondary data analysis and primary data analysis.

ⓘ *It is critically important that you must compare your research findings to the existing findings of the literature review, for both qualitative and quantitative research. This comparison will confirm or contradict the existing beliefs and observations. This is the main rationale for conducting any research.*

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[39] Data analysis is not always about data reduction. It may refer to algorithms designed to reduce the number of variables. For instance, if many variables serve as a proxy for a phenomenon, one can use Factor Analysis or Principal Component Analysis to reduce the number of variables to a few. These techniques are also referred to in the literature as data reduction techniques.

3.4-A. Secondary Data Analysis

Secondary data analysis involves further processing of published data, collected by someone else for a different purpose than yours. This involves exploring common and contrasting trends and patterns within the secondary data related to the research question. Secondary data analysis mostly involves document analysis and/or the analysis of official statistics.

The term *document* refers to a wide variety of different written, graphical, or drawn artefacts transmitting the information.[40] These documentary sources may include personal diaries, letters and memoranda, mass media material including social media accounts, official documents deriving from the state such as national development plans, sectoral policy, research reports, maps and charts, journals, proceedings, summaries, official correspondence, press releases, various public records etc. These documents contain text (words) and images that have been recorded without researchers' intervention hence it is treated as a secondary data source.

Box 8.   Sampling for documents & data analysed

DOCUMENTS SELECTED	DATA ANALYSED
Vision 2025 (Long-term plan)	Importance of R&D and knowledge networks
UNESCO Institute for Statistics (June 2022)	R&D expenditure (% of GDP) – Pakistan Review of R&D portfolio
Higher Education Commission (website)	Evaluation of investments in R&D initiatives
M/o PD&SI's Public Sector Development Programme (2022-23)	Evaluation of investments in R&D initiatives
Restructuring of R&D in Pakistan – Parvez Ahmad Butt, COMSATS Islamabad	Leadership in R&D organisations and role of universities
Newspaper articles	Is R&D still not a priority for the government?

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[40] Grant (2022) presents detailed guidelines on how to conduct research projects with documents.

Document analysis involves reviewing and assessing documents in order to improve understanding and develop empirical knowledge (Bowen, 2009).[41] Whether printed or electronic, you need to ensure the quality of documents such as authenticity and credibility. Although document analysis is not very common in social research, it is highly relevant in policy sciences research that involves studying stages of the policy process, and conducting research of/for policy. Document analysis is often used in combination with qualitative/mixed-methods research as a means of triangulation (Bowen, 2009).

ⓘ *It is recommended that you should rely on published or non-classified official documents for your analysis. Using unpublished or classified information would raise questions related to the authenticity and credibility of data/documents.*

There are numerous advantages attached to the document analysis. For instance, document analysis is less time-consuming and cost-effective than other research methods as it requires selection from the available information, instead of a collection of primary data. The availability is mostly not a challenge since many documents are accessible online or can be obtained from the organisation directly. This makes it a more effective way of conducting research especially when the primary data collection is not feasible. However, make sure that you collect complete (enough) collection to avoid a biased selectivity problem and evaluate the content and quality of the documents.

Official statistics are statistics published by a government agency or public organisation, such as Pakistan Bureau of Statistics, as a public good. The usage and analysis of official statistics for policy research and public sector decision-making has been in practice globally for centuries. For research purpose, use of official statistics for secondary data analysis is considered time and cost effective, and it is often reliable and credible too. You just need to ensure the quality standard of the data.

ⓘ *It is important that you rely on one (published) data set for your research as it might lead to complexity if you try to mix/match two or more sources of data to process your analysis. For instance, if you want to study education enrolment rate in Punjab, then rely on either PSLM, or MICS, WDI, HDI, ASER Reports. It is recommended because every study selects different sample, indicators and time.*

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[41] Bowen, G. 2009. Document Analysis as a Qualitative Research Method. Qualitative Research Journal, Vol 9, Issue 2, pp. 27-40.

3.4-B. Primary Data Analysis

After the collection and documentation of raw information (primary data), the data are to be coded and analysed to elicit findings. In *qualitative* studies, data analysis involves arranging data thematically, identifying patterns within and across responses, and analysing them critically in order to answer the research question. Contrary to this, data analysis for *quantitative* studies entails critical analysis of numerical values, interpretation of trends, and attempts to find rationale underlining the main findings using theoretical framework. The results will then be reviewed and summarised in such a manner that would scientifically and logically explain the phenomena under investigation.

Unlike quantitative data analysis, rules and procedures for analysing qualitative data are not clear enough. The preference of analysis method selection depends on the nature of qualitative enquiry and rationale developed in the research scope. A number of qualitative data analysis methods are available for consideration. Here, we discuss some commonly used analyses including thematic analysis, narrative analysis, and content analysis for qualitative research.[42]

Thematic analysis is the most common approach to analyse the qualitative data (Bryman, 2021). The method involves the identification of key themes, concepts, or categories (Ritchie and Lewis, 2003). In this approach, the researcher starts with some broader themes derived from the review of literature and add/merge themes and sub-themes as he/she goes along. This method of data analysis is highly recommended to study qualitative cases and phenomena in policy and social sciences.

Thematic analysis is often associated with Ritchie and Lewis's (2003) '*Thematic Framework*' method to analyse the data. The framework analysis requires three forms of activities: (a) data management, in which the raw data is to be reviewed, coded, and sorted; (b) descriptive accounts, in which the researcher identifies key dimensions, calculates the range and diversity of phenomena; and (c) exploratory accounts, in which explanations are to be built to describe and articulate the collective perceptions and experiences of the respondents in a meaningful way.

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[42] For more details, see Bryman (2012) and Ritchie & Lewis (2003)

In practice, once you collect and transcribed the required (qualitative) data, thoroughly review the transcripts that would help you to generate a set of themes, sub-themes, and concepts according to which the data will be labelled, organised, and synthesised. Develop codes against these themes/sub-themes and groups under relevant research questions. Develop a thematic structure of key themes, concepts and categories for cross-referencing and analysis purposes.

Box 9. Thematic structure of a study about effectivenessof a training programme

TRAINING EVALUATION

Knowledge	Skills	Attitudes
Administration Service Delivery Public Policy & Economics Governance Pakistani Society	Research IT Skills Analytical Writing Communication Teamwork Leadership	Discipline Time Management Achieving goal/ Targets Managing resources

The key themes (*at tier 2 level*) are the knowledge, skills, and attitudes while the concepts and categories (*at tier 3 level*) are emerging from the relevant themes.

Read each phrase, sentence and paragraph in fine detail and determine which part(s) of the thematic structure applied. Using the *NVivo programme*, the data is then to be sorted in a way so that materials with similar content or properties are located together.[43] Once you complete the sorting process, each node is to be explored to unpack the content, refine categories, and explore 'what is happening' within a single node. Explore reasons, infer underlying logic, and study the patterns to solve the puzzle.

Narrative analysis characterises the main story that is being told. It concentrates on the approach and style the narrative is being constructed and evaluates the intention of the teller and the nature and dynamics of the audience as well as the meaning of the story. In simple words, the narrative analysis focuses on the attention shift from

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[43] Unstructured data (text) is often handled and analysed manually, however for bigger data set, NVivo programme can be used to manage the record. Remember that NVivo (or any other qualitative programme) will only help you to manage the data or max help to execute the content analysis.

what happened to *how do people make sense of what happened*, and *to what effect*. This analysis can be conducted for individual/household (such as marriage, career, employment etc.), organisational narrative (such as the role of Edhi in humanitarian services, the role of the military in geopolitics, hospital services, etc.), or institutional narrative (such as the supremacy of the constitution, democracy etc.). To conduct narrative analysis, researchers must study the social-economic and cultural background of the subjects to contextualise the narration.

Content analysis is an approach that analyses both the content and context of documents and texts. In this method, the researcher identifies themes and seeks to quantify content and the frequency of its occurrence. The content analysis helps to present the processed information in percentages, averages and ranges. In this sense, content analysis is the only qualitative method of analysis with quantitative interpretation. It involves counting and comparisons, usually of keywords or content, followed by the trend analysis and interpretation of the underlying context. It is a transparent and objective method of analysis that is flexible enough to be applied in different contexts. However, since content analysis offers quantified information, it is not always possible to determine the answers related to 'why?' questions.

> ### Box 10. Content analysis of 'Aurat March' in Pakistan—Example
>
> Imagine that you are interested to examine the interest shown by the mass media in a major news item such as Aurat March. For this you may ask:
> - How many newspapers and magazines cover the event?
> - How many electronic media channels covered the event and when?
> - How many people participated in the debate on social media?
>
> Your results from the content analysis may suggest:
> - 12 national newspapers—6 English and 6 Urdu newspapers, and 3 magazines—2 weekly, 1 monthly publications covered the event.
> - 13 national and local television news channels covered the event—5 television talk shows, 6 television news headlines, and 2 international broadcast programmes.
> - More than 20k social media handlers—63 public figures, 121 human right activists, 12 active politicians, and 33 journalists participated in the discussion on Twitter, Facebook and Instagram.

The researcher may count the significant actors involved, repeated words used (subjects and themes), and context (event, time, and space). For instance, count the use of the word 'corruption' in multiple speeches of a politician or count the word 'skill development' appearing in government policy documents. Similarly, in qualitative (primary) research, you will go through your transcripts, code specific words, count them, and draw comparisons.

3.5.   WRITING, PRESENTING & DISSEMINATING RESEARCH

Writing research is the final stage of the research process (*see figure 4*). Through this, you will disseminate the findings of your research and convey policy recommendations to the relevant audience. Great research written and presented poorly is still poor. So, give due attention to the writing up part of your research process. The foremost thing you would need to do is to start organising your material and creating the outline of your research. Once the tentative structure of your study is in front of you, start filling the sections with the material. This will lead you to your *first draft*. You then need to work in and across sections, critically reviewing and formatting your material and producing a *second draft*. Get feedback on that from your supervisor or colleagues and make revisions towards the *final product* and submit t for publication. *Appendix 3* presents detailed guidelines for writing research.

Academic writing has specific conventions in terms of structure, content, and style. Here, it is important to understand the difference between certain key academic (research) documents.[44] An *essay* is a fairly short, self-contained argument, often using sources from a class in response to a question provided by an instructor. A *research paper* is a more in-depth investigation based on independent research, often in response to a question chosen by the researcher. A *thesis/dissertation* is a large final research project undertaken at the end of a degree, usually on a topic of the student's choice. And *research proposal* is an outline of a potential topic and a plan for a future dissertation or research project. It is to acknowledge that academic writing is formal and unbiased, clear and precise, focused and well-structured, well-sourced (properly referenced), and consistent in every manner. It cannot be a personal account, over-complicated, emotive, and/or grandiose.

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[44] Read an interesting article by Scribbr.com on '*What is academic writing? Dos and don'ts for students*', available here: https://www.scribbr.com/category/academic-writing/

3.5-A. Writing Process

Good academic writing requires effective planning, drafting, and revision. The writing process involves five basic steps that will assist you to structure your work according to the requirements of the publisher (see *figure 22*).

Figure 22:   The writing process
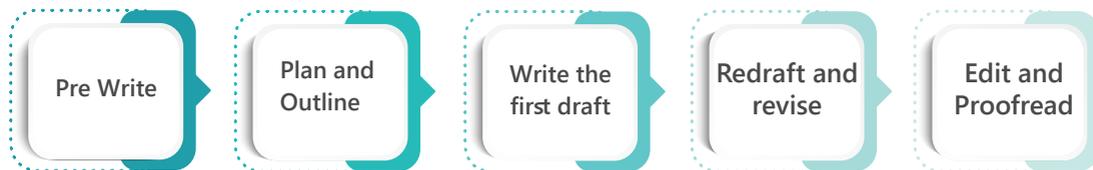
Pre-writing is the first step in which you would finalise your research topic and define the scope of your study, followed by planning and conducting research (as described in this book—*Section III, 3.1 to 3.4*). This may include writing a research proposal, especially in the case of university degree research or research grant application. In either case, you will have some sort of structure in your mind to organise and present your work. This leads you to the second step of the writing process, i.e., *plan and outline*. Here, you should plan out the structure of your thesis/research paper and start filling in the sections. For instance, fill the introduction section with the background research material, research argument, and scope. Add details of your research journey in the methodology section and insert relevant secondary data (tables/ figures) in the introduction or findings sections. It is alright if your initial structure needs some revision during the writing process.

Once you have your preliminary findings and broad conclusion ready, start filling in the findings and discussion sections and complete the *first draft*. This is the third step of the process. This would be a non-linear process as you may choose to write/complete the introduction section at the end. Make sure that there is some link and flow in your sections/sub-sections and even within paragraphs. The task at this stage should be to complete the first draft, not to make things perfect. Once you will have a complete draft, you will then have a clearer idea of where improvement is needed.

Redrafting and revising is the fourth step in which you will critically read your first draft and identify potential areas for improvement. It is suggested that you leave your first draft alone for a while before you start reading and evaluating your work again with fresh eyes. During this exercise, evaluate your work as if your examiner is reading your work. Look for arguments that are unclear or not making any sense. Revise vague information and try to present it in a better way or in a different order. Refine arguments by reordering or adding more details where needed or removing parts of the text that are irrelevant or creating fat. Once done, seek comments from your supervisor/colleague and pay attention to the details. Finally, before submission, you will *edit and proofread* the whole document ensuring that your writeup is clear, concise, and grammatically correct. Here, you will read your text line by line and look for grammatical errors, ambiguous phrasings, proper referencing of sources used, and repetition. Follow the citation style recommended by your university or publisher. Cite your sources properly (in-text, in-text quotations, and full references) and check for plagiarism.[45]

In research, **plagiarism** is a common (and often misunderstood) problem that is often the result of a lack of knowledge and skills. Plagiarism is intellectual theft! You cannot simply copy-paste published material (ideas and thoughts of another author) into your piece of work without acknowledging it properly. So, it is essential that you do not just copy-paste anything. Either you write it in your own words, or you cite and reference the material used accordingly. Also, it is suggested that you do not recycle images, figures, or tables from other sources. If necessary, seek permission from the author or publisher before using it. To understand 'what is plagiarism' and 'how to avoid it' in your research, you are recommended to explore several articles/books and tutorials available online.

3.5-B. Presentation and Dissemination

Research is meaningless without a nice presentation, proper dissemination, adequate policy engagement, and advocacy. Presenting your research work is as important as conducting it. That is the only way how people will be able to understand your work,

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[45] To manage your references and bibliography, you can do it either (a) manually using a recommended style of referencing and citation, (b) using MS Word 'References Tab' to manage your references digitally, or (c) using an open-source reference management tool such as 'Zotero' to import citations directly from bibliographic databases.

discuss results, offer feedback, and take it further. Remember that presentation is the visual version of your work. Our brain processes visual content much quicker than text, which is why people are comfortable responding better to visual information. You must have heard the famous proverb "*a picture is worth a thousand words*". Today, in the age of electronic and social media, it can be said "*a short video is worth ten-thousand words*". That is why, once your research project is completed, plan and disseminate your work through different means including policy briefs, newspaper articles, short animated/research videos, and documentaries, and engage with relevant groups in webinars, seminars and/or twitter spaces.[46] Take it as an exciting opportunity and tell the world about what you did, and how you did it, and claim the contribution you made to the literature or public policy debate.

Before you start preparing your presentation, the first and foremost thing you should be thinking of is how to make your audience understand your work. How to involve, engage, and even inspire them? For this, you need to know your audience. Who are they (institutional background, intellect level, experience etc.)? What should be your content? What do you have to offer? What is the purpose of your presentation? And what will be the venue and interaction settings (formal, informal, semi-formal) of your presentation? With these details, consider the tools you will use in your presentation. Do you need a multimedia projector (for in-person presentations) to display your presentation? Make your choice of tables, figures, animation and slides design decently. Nevertheless, work on the structure of your presentation. Usually, for a 30-minute presentation, you must allocate 3-5 minutes for your opening remarks (introduction and scope of your research) followed by 12-15 minutes for your main work (research findings), 3-5 minutes for closing/concluding your talk (key messages and policy recommendations), and leave 5-10 minutes for questions, comments, and suggestions from the audience.

ⓘ *It is recommended that you must practice delivering your talk before the presentation day. Ask your friends/colleagues to listen to your presentation and identify gaps. Rehearsal at the actual venue is often useful. Record the time to complete your presentation and make necessary changes in your structure/style accordingly.*

[46] The Pakistan Institute of Development Economics (PIDE) and the Research for Social Transformation and Advancement (RASTA) programme are the leaders in policy engagements and research dissemination in Pakistan. In the last three years, PIDE and RASTA have organised hundreds of research events including webinars/seminars, workshops, conferences, research talks, and lectures, and produced numerous policy briefs, knowledge briefs, research videos, and short documentaries.

On the day, it is critical that you build a plot at the beginning of your presentation. The opening should be clear and punchy so that you can motivate the audience to listen. Do not spend too much time explaining your research argument and scope. Keep it brief. State clearly what you were trying to explore in this research. It has been observed that the audience usually takes more interest in knowing '*what did you find*', '*how you did it*', and '*what actions you are going to suggest*' to fix the problem. For this purpose, it is important that you identify the main points, rank them in a certain order, and allocate sufficient time to each considering its significance. Avoid too many numerical values and equations. Your delivery of the presentation should be like storytelling. While sharing your methodology, describe in detail your research journey such as methods, data sources, data collection, rationale, and use tables, graphs and maps.

Box 11. *Effective delivery—Presentation skills*

- Always face the audience, not the slides (back) on the wall/screen.
- Decide your standing position wisely. You may choose to stand behind the podium for formal presentations while it is alright to walk around the stage/audience during lectures/workshops.
- Be purposeful during your presentation. Express controlled gesture by maintaining eye contact. If you are not confident enough to do so, pick a couple of familiar faces in the audience for this.
- Deliver your talk clearly and professionally. Do not rush and speak too fast. You have already calculated your time during rehearsals.
- Avoid cluttering your slides with long sentences and loads of information. Use bullet points.
- Try not to read from the slides. Instead, use talking points (notes).
- Some people use humour to engage their audience. It can be useful but forced humour can be disastrous sometimes.
- Visual aid such as tables, graphs, and illustrations are always useful to present your findings. Use simple, clean, and clearly labelled graphs. Use laser pointer to indicate the exact finding especially while displaying tables and graphs.
- Be mindful of the text size and colour scheme. Text should not be too small or too large, and similarly colours should not be too light or bright.
- For Q&A, listen to the questions carefully and give short answers. Entertain only those questions which are relevant to your presentation. If you do not know the answer, do not get confused. Take details and get back later.

Coming to the findings and discussion part, organise the presentation of your findings under relevant research questions. Explicitly state *what new did you find?* Present main findings only. You will not have time to get into details. At the closing of your presentation, it is critical what the audience has gained from your talk. Quickly *summarise* the key takeaways from your work and highlight what is to be done, when, where, by whom and how. Finally, thank everyone who provided support in your research. Appreciate your audience for their attention and tell them you would be happy to answer any questions.

Data visualisation is the graphical representation of information and data.[47] This includes both static and animated visualisation of data. Static visualisation tools and infographics such as charts, plots, graphs, diagrams, and maps make data more accessible and understandable, especially for non-technical audiences such as politicians and civil servants—generalists. By watching the data, it is easier for the brain to intake, process, integrate, and make sense of the information presented. According to Wilke (2019, p.1), "data visualisation is part art and part science. The challenge is to get the art right without getting the science wrong, and vice versa." Featuring *aesthetics*, the objective is to accurately convey the key message of your research without misleading or distorting it. In the era of data governance, data visualisation tools and techniques are essential to inform the decision-making process. Hence, it is the responsibility of the researcher to make the data visualisation more interesting, relevant and thought provoking in the sense that people understand and remember what you have presented. *Table 5* presents the types of visualisation suggested for certain types of data as per Wilke (2019).

Before selecting your data visualisation tools, you should know your audience and intended messages for them. Also, think about the possible questions and conversations you might get into because of the visualisation. It is therefore recommended that you carefully consider and choose the most appropriate format – visualisation tools, font, colour etc. – for your presentation that helps you to tell the story and answer questions generated by data. Some sample graphs, charts and tables are given below for your consideration.[48]

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[47] (Tableau.com, online) Read a useful article "*What is Data Visualization? Definition, Examples, and Learning Resources*", available here: https://www.tableau.com/learn/articles/data-visualization (accessed on 11.10.2022)

[48] (Tableau.com, online) Read a useful article "Data Visualization Tips for more Effective and Engaging Design", available here: https://www.tableau.com/learn/articles/data-visualization-tips (accessed on 11.10.2022)

| Table 5: Directory of visualisations	
TYPE OF DATA	**TYPE OF VISUALISATION**
Amounts	▪ Bar graph (single bars, clustered bars, and stacked bars; vertical column or horizontal bar) ▪ Scattered plot (dots or bubble, may add a line for trend/relationship)
Distributions	▪ Histogram (and stacked histogram or Pareto) ▪ Density plot (and overlapping densities plot) ▪ Boxplot, violin plot, strip chart and Sina plot (for multiple distributions at once)
Proportions	▪ Pie chart (multiple pie charts, pie of pie, bar of pie, and doughnut pie) ▪ Bar graph (single bars, clustered bars, and stacked bars; vertical column or horizontal bar) ▪ Treemap (and mosaic plot)
x—y relationship	▪ Scattered plot (dots or bubble, may add a line for trend/relationship) ▪ Line graph (and connected scattered plot)
Geospatial data	▪ Map – highlighting boundaries ▪ Choropleth map – data value in different colouring
Uncertainty	▪ Error bar (and graded error bar) ▪ Stock plot (and box & whisker plot)

ⓘ *Data visualisation is not about showing off your graphical skills. It is about enhancing the experience of your audience (or reader) and effectively conveying the intended message. Do not overdo it. Keep it simple, easy to digest, and relevant and make sure your story (through visualisation effects) makes an impact.*

Pie (or doughnut) charts are easy to read and understand. They are used for visual comparison of shares or numerical proportions of the whole. *Figure 23* (A & B) presents a total number of emergency calls received by 1122 in the Punjab province

of Pakistan between 2004 and 2022. By observing the small and large sizes of the slices of the doughnut, one can make comparisons. However, it is important that you do not overdo it by adding too many slices to a pie chart (see figure 23-A). To keep it simple and relevant, you may de-emphasise by aggregating small proportions and highlighting major shares to elicit relationships (see figure 23-B).

Figure 23:   Pie charts for data visualisation

A. Total 122 Emergency Calls Recieved
in Punjab (2004-2022)
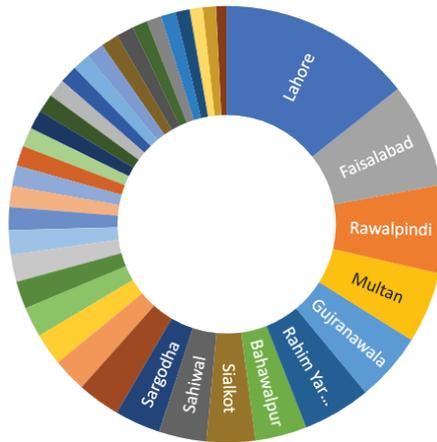
B. Total 1122 Emergency Calls Recieved
in Punjab (2004-2022)
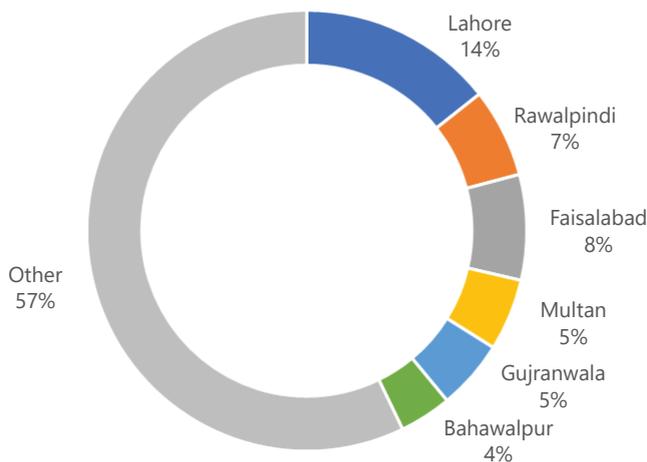
Source: Author's illustration; Data source: Punjab Emergency Service Department—Rescue 1122 (Online, 2022)

Like pie charts, *Treemaps* are also used for the visual composition of the whole by comparing shares or numerical proportions. Pie charts might best work with fewer observations, while the Treemaps can be used to highlight several categories at a time. Using the same dataset, *figure 24* presents total number of emergency calls received by 1122 in Punjab province of Pakistan during 2004 and 2022. One can easily observe and compare small and large sizes of the boxes representing the share in total emergency calls made. Now, if we compare this chart with the doughnut chart (presented in figure 23), one can observe that many additional categories are visible and easy to comprehend in the Treemap.

Figure 24:   *Treemap chart for data visualisation*

B. Total 1122 Emergency Calls Recieved in Punjab (2004-2022)
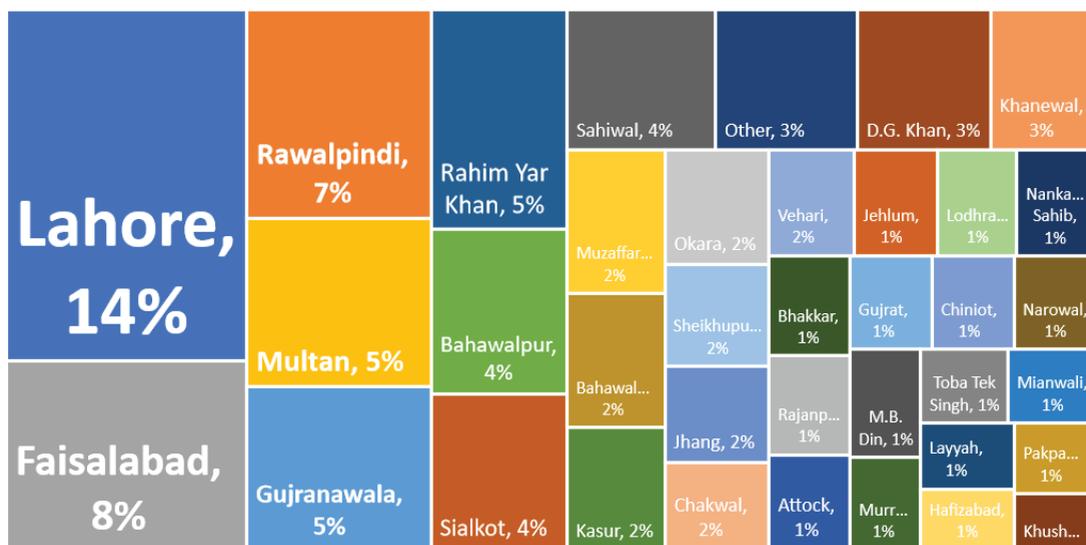
Source: Author's illustration; Data source: Punjab Emergency Service Department—Rescue 1122 (Online, 2022)

Bar and line graphs are the commonly used graphs for data visualisation. However, it is important to note that *bar graphs* are recommended to compare categories while *line graphs* are best used to present trends over time. For instance, line graph would be suitable to describe economic growth over a longer period (see *figure 25*). Using the same dataset, figure 25 (A & B) presents different types of emergency calls made in selected cities of Punjab during 2004 and 2022. Since the timeseries data were not available, the bar graph adequately presents the comparison of categories.

Figure 25:   *Use appropriate visualisation to draw (or present) comparisons*
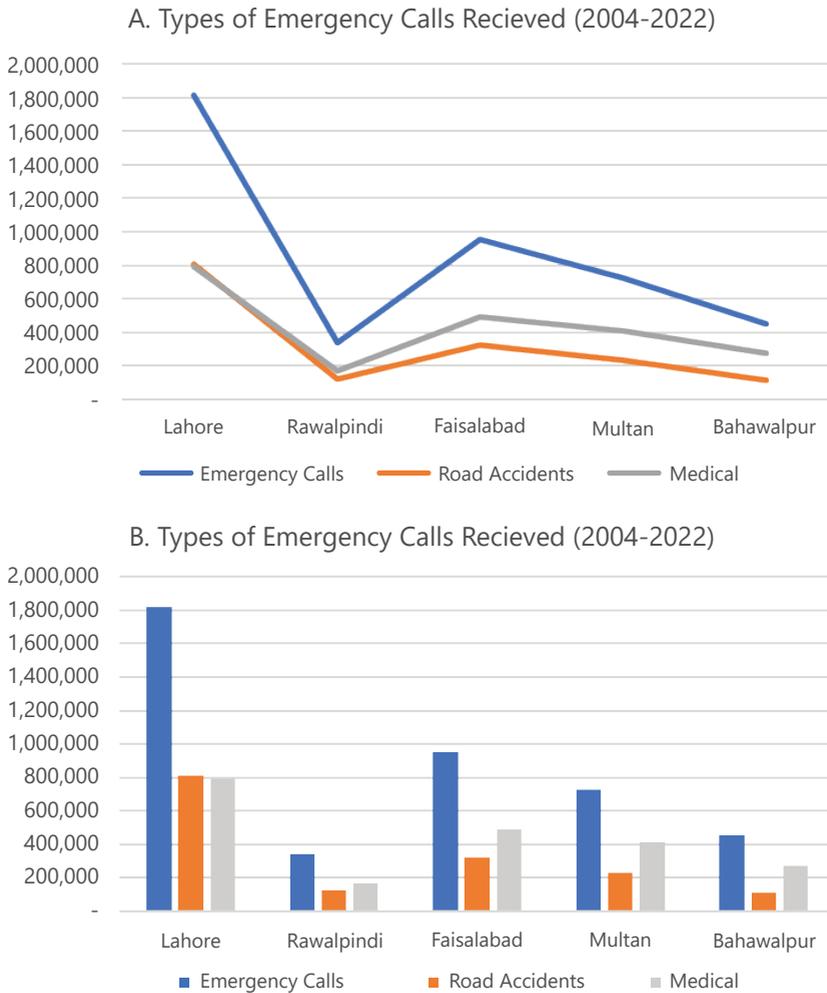
A. Types of Emergency Calls Recieved (2004-2022)

B. Types of Emergency Calls Recieved (2004-2022)

Source: Author's illustration; Data source: Punjab Emergency Service Department—Rescue 1122 (Online, 2022)

To contextualise the message, use of *infographics* can enhance the effective value of data visualisation. Infographics are the graphic visual content used to convert complex details into clear and digestible content. For instance, *figure 26* presents Pakistan's economic growth in a long-term historical context. The line graph shows the boom-and-bust trend of economic growth since 1951. The colourful bar on the top shows the eras of political and military regimes, while significant geo-political events and some major incidents/developments are highlighted through labelling at the bottom.

Figure 26:   Infographics helps to contextualise the message(s)

Pakistan's Economic Growth in a Historical Context
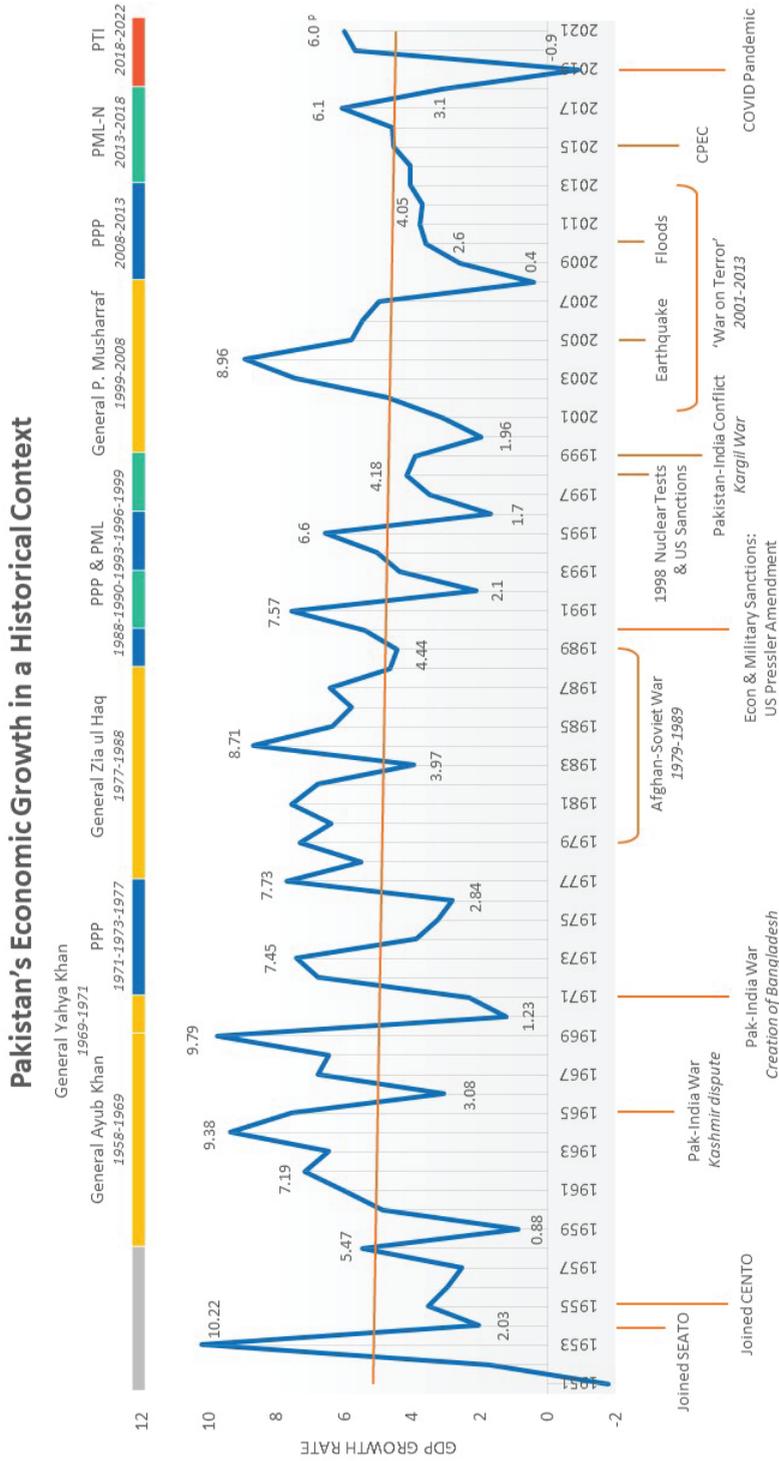
Source: Author's illustration; Data source: State Bank of Pakistan (various years)

Infographics are also used to describe processes and relationships. This book used multiple infographics to help the reader to understand steps and stages involved in the research process. Similarly, maps and illustrations are quite helpful to contextualise and present your data. For instance, *figure 27* presents the map of the Sialkot city highlighting the comparison of official versus actual (functional) city boundary using the GIS spatial data. Such information would have been very difficult to present and comprehend without using the map and infographics.

Figure 27:   Maps and illustrations help to contextualise the message(s)

Sialkot: Functional vs Actual City Boundary
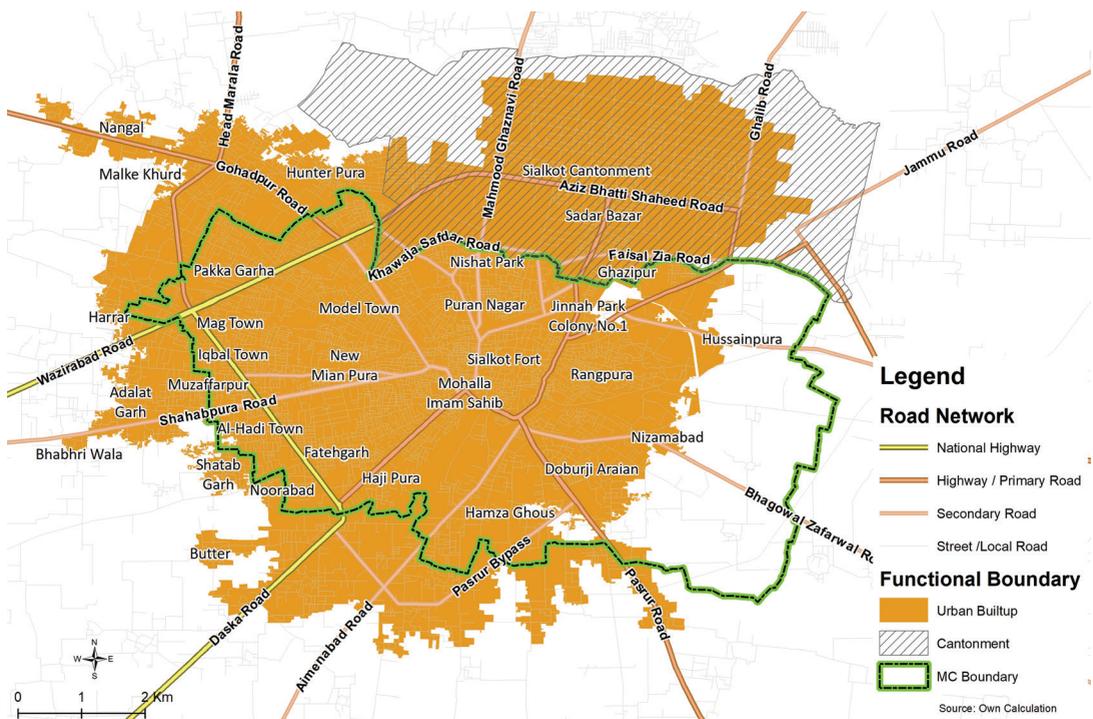
Source: Author's illustration; Pide Citypedia—Sialkot (forthcoming)

Some researchers may like to use technical illustrations to display inter-relationship between different indicators, such as chord diagram (see figure 28). Although it a convenient way for researchers to bring in more information, inter-linkages, and comparisons in one diagram, such technical graphs may require detailed interpretation for audience and/or readers since not everyone can easily understand it like bar and line graphs.

Figure 28: *Technical graphs may require detailed interpretation*
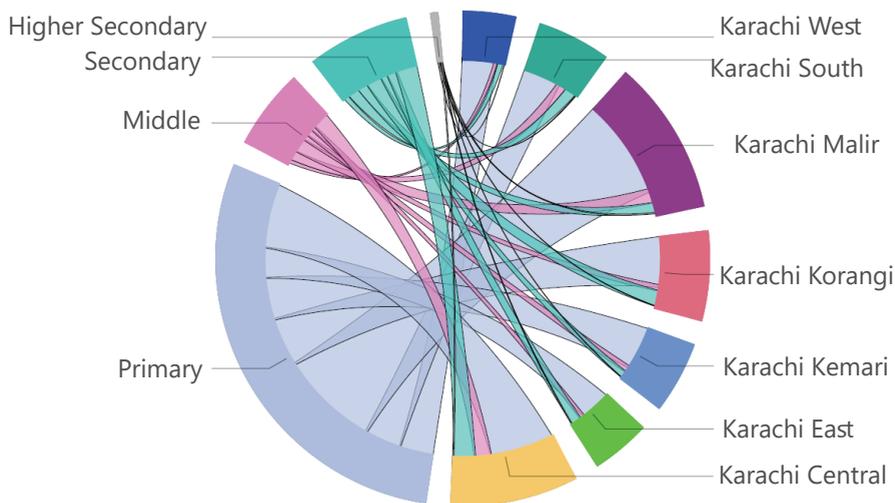
Source: Author's illustration; Data source: Pide Citypedia—Karachi (forthcoming)

	1951–1961	1961–1972	1972–1981	1981–1998	1998–2017
Karachi	6.05	5.38	4.76	3.49	2.48
Lahore	4.36	4.53	3.71	3.66	3.82
Faisalabad	9.11	5.85	3.53	3.58	2.49
Rawalpindi	2.55	6.24	1.46	4.25	2.11
Peshawar	3.74	1.95	9.03	3.29	3.70
Islamabad	-		12.31	5.75	3.45
Quetta	2.45	3.44	7.26	4.09	3.04
Bahawalpur	7.38	4.05	3.59	4.93	3.34
Larkana	3.72	3.54	6.65	4.69	3.15
Mardan	4.82	2.93	3.69	3.03	2.01
Turbat	2.60	16.75	7.83	1.60	6.15

Table 6: Heatmap of population growth rate in Pakistan

Source: Author's illustration; Data source: Population growth rate of Pakistan (PBS, 2022)

Heatmap is a useful type of graphical representation of data in which values are highlighted in different colours showing the incidence and/or patterns. Heatmaps are used both in tables and maps. For instance, *table 6* presents the population growth rate in selected cities of Pakistan during 1951 and 2017. The darker colour cells indicate the incidence of high growth rate as compared to lighter colour cells. Similarly, one can also observe the patterns in population growth rate over time and city-wise.

Like weather forecast, application of heatmap on geographical locations – such as city, region, country or global – are quite useful to examine incidence, progress and/or draw comparisons. For instance, using heatmap (colours), *figure 29* presents the progress made by countries to eliminate poverty. According to the colours assigned to different performances, we can see that Pakistan is facing significant challenges to eliminate poverty and compare it with other countries.

Figure 29:   *Heatmap of progress made by countries related to SDG 1 (No Poverty)*
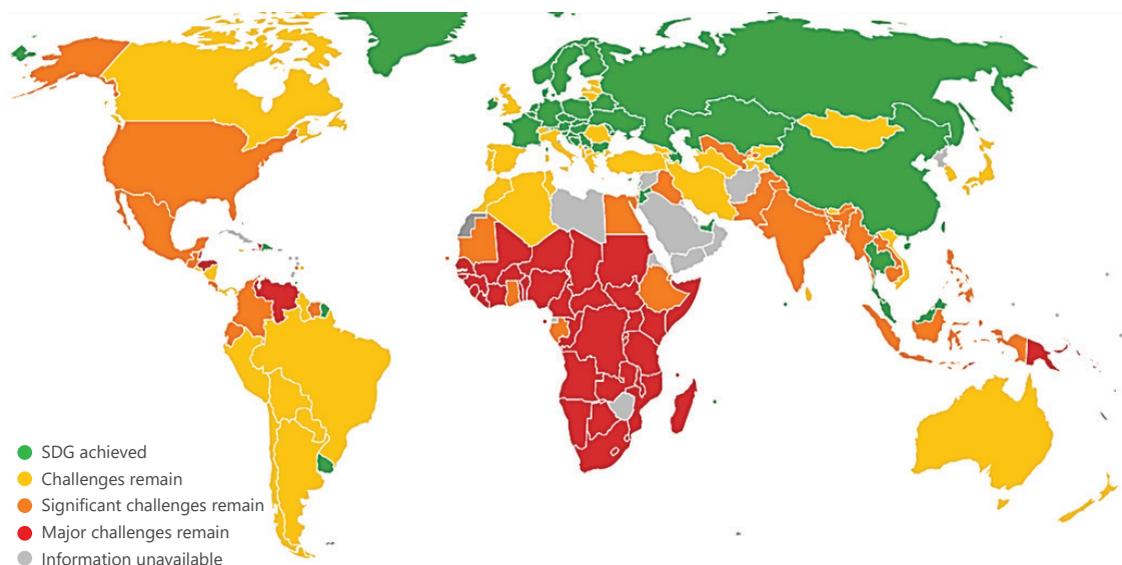
Source: SDG Dashboard–Global poverty heatmap
(online:https://dashboards.sdgindex.org/map/goals/SDG1)

RECOMMENDED READINGS

- BECKER, S. & BRYMAN, A. (eds). 2011. Understanding Research for Social Policy and Practice: Themes, Methods and Approaches, Bristol: Policy Press.

- BECKER, S., BRYMAN, A. & FERGUSON, H. (eds). 2012. Understanding Research for Social Policy and Social Work: Themes, Methods and Approaches (2nd Edition), Bristol: Policy Press.

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- GRANT, A. 2022. Doing Your Research Project with Documents: A Step-by-Step Guide to Take You from Start to Finish, Bristol: Policy Press.

- KARA, H. 2017. Research and Evaluation for Busy Students and Practitioners: A Time Saving Guide (2nd Edition), Bristol: Policy Press.

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- RITCHIE, J. & LEWIS, J. 2003. Qualitative Research Practice, London: Sage.

- SILVERMAN, D. 2005. Doing Qualitative Research, London: Sage.

- WILKE, C. O. 2019. Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures, USA: O'Reilly Media, Inc.

RECOMMENDED ONLINE RESOURCES

- RESEARCH PROCESS
  https://research-methodology.net/research-methodology/research-process/

- RESEARCH METHODS
  https://research-methodology.net/research-methods/

- EVALUATION RESEARCH
  https://www.betterevaluation.org/en

- SAMPLING
  https://research-methodology.net/sampling-in-primary-data-collection/

- SAGE RESEARCH METHODS
  http://methods.sagepub.com/

- HARVARD STYLE CITATIONS
  https://library.leeds.ac.uk/skills-citations-harvard

- HARVARD STYLE REFERENCES
  https://library.leeds.ac.uk/skills-referencing-harvard

- APA, MLA, Chicago Style – AUTOMATICALLY FORMAT BIBLIOGRAPHIES
  https://support.office.com/en-us/article/apa-mla-chicago-%E2%80%93-automatically-format-bibliographies-405c207c-7070-42fa-91e7-eaf064b14dbb

- RESEARCH GUIDES—UNIVERSITY OF SOUTHERN CALIFORNIA
  https://libguides.usc.edu/writingguide/researchglossary

- QUALITATIVE AND QUANTITATIVE RESEARCH: GLOSSARY OF KEY TERMS—WRITING@CSU (COLORADO STATE UNIVERSITY)
  https://writing.colostate.edu/guides/guide.cfm?guideid=90

- THE LITTLE BOOK OF PLAGIARISM: WHAT IT IS AND HOW TO AVOID IT
  http://hec.gov.pk/english/services/faculty/Documents/Plagiarism/Little%20Book%20of%20Plagiarism.pdf

- HIGHER EDUCATION COMMISSION (HEC) PLAGIARISM POLICY
  http://hec.gov.pk/english/services/faculty/Documents/Plagiarism/Plagiarism%20Policy.pdf

Appendix 1: ESSENTIALS OF GOOD QUALITY RESEARCH

To qualify as good policy research, the research process must have certain standards and characteristics to be followed. Some characteristics of good quality research are listed below:

CLARITY

Research work must be free of ambiguities and should have clarity in all aspects. In simple words, the research problem should be well-formulated, and the purpose of the study should be clear enough. It is one of the main essences of research, without which all efforts are useless. On the one hand, it should have clarity in the research scope (such as defining the research problem and developing clear research questions) which clearly defines the direction and dimension of the research. On the other hand, it should have a well-thought methodology (quantitative, qualitative, or mixed methods) that denotes how to find the best possible answers to the research questions. Without bringing clarity on both aspects, a researcher cannot undertake good quality research.

USEFULNESS

A good research should have some practical relevance (or linkage) to the existing debate and/or public policy problem. Identifying what exactly the research is about and what impact/ contribution it could make are critical to its usefulness. Researchers are therefore suggested to clearly state the research problem and spell-out how in practice they expect their research work to contribute towards a problem-solving situation.

TRANSPARENCY

A good research should be open to scrutiny in a sense that it can be replicated and doable in other settings. Researchers are suggested to provide detailed account of how research was conducted such as:

- details of primary and secondary data sources
- time and resources involved

- appraisal of strengths and weaknesses of the methodology
- research environment (location and duration)
- verifiable linkages with existing literature/debate
- acknowledging contribution of funding agencies and participants who took part in your research

USE OF DATA / INFORMATION

Collection and use of primary and/or secondary data (and information) are key inputs to research and analysis. Researchers are suggested to clearly cite sources and specify methods of data-collection and indicate limitations in the quality of available data. Secondary sources such as official statistics and/or existing public policy debate may be used to build the research argument and formulate the scope.

RESEARCH ETHICS

To suggest that the goal of research is the production and dissemination of knowledge is not to argue that this goal should be pursued and achieved at all costs. There are ethical issues surrounding social research. Researchers are suggested to give high priority to research ethics and every attempt should be made during the research process to be sensitive towards wider ethical concerns.

Principles of research ethics ask that researchers should avoid harming participants involved in the research process by treating all equally and respecting and taking into account their values and decisions (Flick, 2009). Following ethical considerations must be kept in mind during research process:

- HONESTY: Honestly report data, results, methods and procedures, and publication status. Do not fabricate, falsify, or misrepresent data.

- OBJECTIVITY: Strive to avoid bias in research design, data analysis, data interpretation, peer review, personnel decisions, and other aspects of research.

- CAREFULNESS: Avoid careless errors and negligence; carefully and critically examine your own work and the work of your peers. Keep good records of research activities.

- OPENNESS: Share data, results, ideas, tools, resources. Be open to criticism, feedback and new ideas.

- RESPECT FOR INTELLECTUAL PROPERTY: Honour copyrights and other forms of intellectual property. Do not use unpublished data, methods, or results without permission. Give credit (cite the source) where credit is due. Never plagiarise!

- RESPONSIBLE PUBLICATION: Publish in order to advance research and scholarship, not to advance just your own career. Avoid wasteful and duplicative publication.

- HUMAN SUBJECTS PROTECTION: When conducting research on human subjects, minimise harms and risks and maximise benefits; respect human dignity, privacy, and autonomy.

- RESPECT: Respect the opinions of your colleagues and research participants, and treat them fairly. Be respectful towards their views knowing that those are subject to their own experiences and perceptions.

- NON-DISCRIMINATION: Avoid discrimination against colleagues or research participants on the basis of sex, race, ethnicity, or other factors that are not related to their scientific competence and integrity.

- LEGALITY: Know and obey relevant laws and institutional and governmental policies. Investigation/examination in research means exploring/analysing data and information to inform decision-making process.

In addition to the above, researchers are suggested to take every care to ensure respondents' confidentiality and anonymity of individuals and their institutional affiliations. CONFIDENTIALITY is an active attempt to remove from the research records any elements that might indicate the subject's identities, while ANONYMITY means that the subjects remain nameless. In the former case, protect confidential communications, such as personnel records, government/military secrets, and official (classified) records.

Care should be taken in the drafting and editing of research findings to avoid identifying respondents through their professional role and/or viewpoints. This

means, no use of names and designations of individuals, and no mentioning of the name or their organisations in the final paper/thesis. This will enable researchers to get respondents taking part in the research process without any hesitation and share information openly and honestly.

CONCLUSION & POLICY RECOMMENDATIONS

A good research must implicate the key messages (what went wrong, why and how) in the 'conclusion' section and articulate 'policy recommendations' (what should be done and how) in a way that does not require too much further interpretation. These should be expressed in rather simpler language and related to the audience's known concerns. Policy recommendations should not be a wish-list, but rather actionable steps that should also highlight the implications.

TRUSTWORTHINESS

The concept of trustworthiness in policy research (compared with the traditional concepts of validity, reliability and generalisability in quantitative research) is made up of four criteria:

- CREDIBILITY (*Validity in quantitative research*)

Credibility/validity means truth: interpreted as the extent to which an account accurately represents the social phenomena to which it refers (Silverman, 2000). Researchers are suggested to increase the validity of their research by adopting some specific techniques: for instance, data triangulation and respondents' validation.

Triangulation entails the use of more than one method or source of data in the study of a social phenomenon so that findings may be cross-checked (Bryman, 2012). *Respondents' validation* is a process whereby a researcher provides the people on whom he or she has conducted research with an account of his or her findings and request feedback on that account (Bryman, 2012). Silverman (2005) suggests that good research goes back to subjects with the preliminary results and refines the findings in light of the subjects' reactions.

- DEPENDABILITY (*Reliability in quantitative research*)

Dependability involves the accuracy of the methods and techniques used in the research process. It is generally understood to concern the replicability of research findings and whether or not they would be replicated if another study, using the same or similar methods, was undertaken (Ritchie and Lewis, 2003). This entails ensuring that complete records are kept of all phases of the research process – problem formulation, selection of research participants, fieldwork notes, interview transcripts, data analysis decisions, and so on – in an accessible manner.

- CONFIRMABILITY (*or Objectivity*)

Confirmability is the degree of neutrality in the research findings. It is about the researcher acting in good faith and not distorting the research or manipulating the results by personal values or theoretical learnings. It refers to the level of confidence that the research study's findings are based on the participants' narratives and words rather than potential researcher biases.

- TRANSFERABILITY (*Generalisation in quantitative research*)

Transferability refers to the evidence that the research findings could apply to other (similar) contexts, situations, times, and populations. Although generalisation cannot be guaranteed in qualitative research, however, it can be increased by purposive sampling guided by time and resources. Flick (2009) states that the generalisability of the results is often closely linked to the way the sampling is done in qualitative research.

OBJECTIVITY AND INFERENCE IN RESEARCH

Figure 30:   *Objectivity and inference in research*
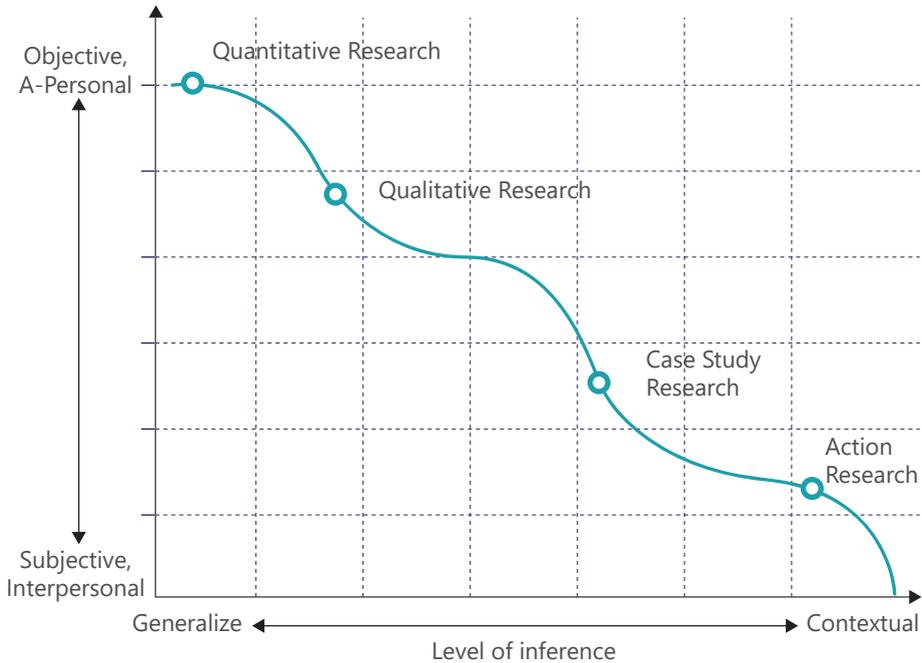
Based on the characteristics of research methods, *figure 30* presents a comparison of different research methods in the context of objectivity and the researcher's involvement (y-axis) versus the level of inference (x-axis). The slope suggests that quantitative research is more objective (a-personal) as compared to other research methods which are comparatively subjective and interpersonal. Meanwhile, the results of quantitative research can be generalised to a wider population while qualitative research (and case study and action research) offers rich contextual understanding.

Appendix 2: HOW TO WRITE A GOOD RESEARCH PROPOSAL?

In academic research, writing a research proposal is a requirement for university (research degree) students or for researchers who wish to apply for a research grant from a funding agency. In this Appendix, we will try to discuss some broad guidelines to write a good research proposal.

RESEARCH DEGREE PROPOSAL	RESEARCH GRANT PROPOSAL
Initial thoughts: • Work on the research idea • Explore your areas of interest • Explore the expertise of your supervisor • Explore data sources and availability • Assess resources available/required to complete the research, write/submit a thesis on time • Set timeline	**Initial thoughts:** • Knowing the funding agency and their requirements (*deadlines, priority areas, do and don't, format etc.*) • Knowing the strengths and weaknesses of your own and your team • Knowing the formalities required both by the funding agency and your institute • Knowing the reviewing process and budget limits • Look for research ideas and a suitable team to join the • project • Resource requirements

What should be the structure/content of my research proposal?

A research proposal must include the following:

- TITLE OF RESEARCH PROJECT

  The title of your research should reflect the main goal of your study—clearly indicate the proposed research or key question. Keep the title short but meaningful. You may finalise the title of your research once you complete the research proposal.

RESEARCH DEGREE PROPOSAL	RESEARCH GRANT PROPOSAL

- INTRODUCTION

  o Background to the research
  o Scope of the study (*statement of problem, research question(s), significance/ public policy relevance of research*)

Articulating brief background about the problem under consideration, here you will build your case with a strong research argument and present the aim, objective(s), research question(s), and significance/public policy relevance of your research. See the section on '*Introduction*' in Appendix 3 and '*Section 3.1-C: Research Scope*' of this book.

- LITERATURE REVIEW

  o Narrative-Theme I
  o Narrative-Theme II

Conducting the review of the literature will help you to formulate research question(s) and finalise the research design. Taking a narrative approach, here you will organise your review thematically; do not just add a summary of the literature. Cite and reference all sources properly. See the section on '*Review of Literature*' in Appendix 3 and '*Section 3.1-B: Background Research*' of this book.

- RESEARCH METHODOLOGY

  o Research method (Rationale?)
  o Data sources/Sampling and planning the fieldwork
  o Data collection and analysis
  o Theoretical/Conceptual Framework
  (*Theoretical link | Justification of the study | Policy relevance*)
  o Timeframe Results and Discussion

This is the second most important section of your research proposal after defining the research scope. A sound research methodology – that will help

you to answer the stated research questions and achieve objectives – is the most critical component of a proposal. Give due attention to details and describe in length: how you are going to collect the required data; justify the sample size and method of data collection; what would be the method of analysis; and indicate the timeline to complete your research. Also, provide the rationale as to why your selection of methods is more appropriate for the proposed research. See the section on '*Research Methodology*' in Appendix 3 and '*Section 3.2: Research Design*' of this book.

- EXPECTED OUTCOME

Here you must justify the relevance and significance of your proposed research. Explain why this research is valuable; how is it relevant to the prevailing (public policy) problems and their possible solutions, and indicate contribution to the existing understanding of the subject.

- TIMELINE AND BUDGET

Timeline and budget are important components of any research proposal. See 'Section 3.2-E: Manage Time and Resources' of this book.

- REFERENCES

Add a complete list of references used in your research proposal at the end of your proposal. Follow the instructions (recommended citation and referencing style) of your institute/ university/ funding agency.

What makes a good research proposal?

A good research proposal should have:
  i.   a well-defined research question,
  ii.   a clear problem statement,
  iii.   carries value and policy relevance,
  iv.   demonstrated understanding of the existing literature,

| RESEARCH DEGREE PROPOSAL | RESEARCH GRANT PROPOSAL |

v.   indication to make a contribution to the literature and/or public policy debate,

vi. academically sound methodology to answer research questions, and

vii. a well-written and organised document including proper citations and references.

Nevertheless, a feasible timeline and reasonable budgetary requirements are also important considerations.

How long should my research proposal be?

Follow the instructions provided by your institute/university/funding agency. It is suggested to strictly meet the page/word limit of your proposal and avoid adding additional documents in the appendix, unless necessary.

What are the important considerations from the examiner's point of view?

- Purpose of the research (*importance of the topic*)
- Well-defined scope (*research questions*)
- Clear articulation of the problem under examination
- Appropriate methodology
- Academic contribution

What are the important considerations from the reviewers' point of view?

- Purpose of the research (*importance and relevance of the topic*)
- Well-defined scope (*research questions*)
- Clear articulation of the problem under examination
- Sound research design and feasibility
- Academic contribution
- Value of expected research outcome for public policy
- Value for money

Appendix 3: GUIDELINES FOR WRITING RESEARCH

WRITING AN 'ABSTRACT'

A good abstract includes the purpose of the research (objectives); main phrases from your Introduction section (scope); very briefly state your research methodology; shares key findings (conclusions) and important policy recommendations. It is usually written at the end of the research project, the time when you would precisely know what the key messages are. You can divide the abstract into two paragraphs. In the first part, including the abstract from the introduction, scope and methods used. In the second part, articulate the key finding(s) and recommendation(s) coming out of your research. Make sure that there is consistency between the information presented in the abstract and the research write-up. The abstract usually contains not more than 300 words.

CONTENT / STRUCTURE OF A RESEARCH PAPER

- INITIAL PAGES (*Preliminaries*)

  - Title page
  - Abstract
  - Table of Contents
  - List of abbreviations
  - List of tables and figures

- INTRODUCTION

Introduce your topic. Briefly talk about the background and context of your research. Clearly state your research argument—why this research is important and what is new about it. Present some evidence (from the existing debate on the subject or secondary data) to support your argument. The research scope must include the aim/objective(s) of your research, the problem statement, and the research question(s). Do not forget to establish a link/relevance with the existing public policy debate and define the boundaries of your research. See Section *3.1-C: Research Scope.*

■ REVIEW OF LITERATURE

This section is about the review of literature related to your research topic and the problem under investigation. Do not just summarise the review. Indicate a gap in the literature—a critical dimension where your research will make a contribution. The literature review should be thematically arranged (based on the narrative or discourse) and presented academically. Cite well-known and latest research in the area. See *Section 3.1-B: Background Research*.

■ RESEARCH METHODOLOGY

o State your research methodology in detail. Tell why the chosen method(s) was considered appropriate for your research. See Section 3.2: Research Design.

o In case primary data collection was involved in your research methodology, share the sampling technique used in your study. State how the sample was drawn from the target population, and what was the criteria of selection. See S*ection 3.2-B: Choose the Sampling Technique*.

o Indicate the data sources (especially in case of secondary data) and state in detail the data collection process (especially in case of primary data). See *Section 3.2-C: Select Method of Data Collection*.

o Indicate how you plan to manage the data and what data analysis approach was considered to draw findings. See *Section 3.2-D: Choose Data Analysis Method*.

■ FINDINGS AND DISCUSSION

This section is your data interpretation and analysis section that can be divided into sub-sections as per your research requirements. Where needed, divide/arrange your analysis thematically into more than one section. In each (thematic) section, arrange your findings and discussion under subthemes. See Section 3.5-A: Writing Process.

■ CONCLUSION

It is suggested to briefly restate your objective/research questions and

reemphasise the contribution of your research. The conclusion of your research should be a brief of key messages' coming out of your research, rather than just a summary of your study. State clearly 'what did your research find' and 'how relevant are your findings with the existing debate/ understanding'. Avoid writing new information, data or sources in your conclusion. Stick to your scope, key findings and the takeaway.

- POLICY RECOMMENDATIONS

Based on your research findings, make (actionable) suggestions keeping in view the 'how' part. For instance, you may like to suggest "there is a need to improve governance in the public sector", but this statement lacks "how to improve governance in the public sector." Instead of creating a long wish list, concentrate on a few concrete policy recommendations which should be actionable with precise and practical implications.

- REFERENCES / BIBLIOGRAPHY / CITATION

  o *Referencing* is an acknowledgement that you have used published or unpublished material belonging to other authors in your assignments or written work. This serves two purposes: (a) acknowledgement of the source, and (b) allows the reader to trace the source. *References* are the list of sources used (cited) in a research document while a *bibliography* is a complete list of sources used (cited) and consulted for research.

  o While writing research, when you use another author's work, referring to ideas and/or findings, you must include the author's or editor's surname and indicate the year of publication in the text of your work. This acknowledgement is called *Citation*. In-text citations are more convenient for both author and reader as compared to inserting citations in Footnote or Endnote. Follow the Style recommended by the Institute or publisher. See 'Recommended Online Sources' of this book for some relevant websites.

  o At the end of your assignment or written work, you must add a comprehensive *List of References/Bibliography* at the end of the paper,

after the Conclusion and Recommendations. Follow the Style recommended by the Institute or publisher.

WRITING & PRESENTATION STYLE

- ### TEXT FONT, SIZE AND ALIGNMENT
  Follow the font style, text size and alignment recommended by the Institute or publisher.

- ### LINE AND PARAGRAPH SPACING
  Follow the line and paragraph spacing recommended by the Institute or publisher.

- ### MARGINS AND PAGE SIDES
  Follow the recommended margins and page sides by the Institute or publisher.

- ### TABLES AND FIGURES
  Tables and figures (such as maps, flow charts or diagrams) should be numbered consecutively, but separately in their categories. In case of more than one table and/or figure is inserted, separate lists of tables and figures must be added at the beginning (after the list of contents) of the document. Sources should be given immediately below the table and figures. Like any other kind of secondary data source, these need to be properly cited.

- ### USE OF ACRONYMS
  Acronyms (or Abbreviations) are usually used to avoid repeating the same word or phrase throughout the same piece of writing. It is recommended that when you use an acronym in your document for the first time, complete words or phrases should be written out with a short form placed in brackets immediately after. For example, the Ministry of Foreign Affairs (MOFA) or the Pakistan Institute of Development Economics (PIDE). This way, it would be clear to the readers exactly what the letters 'MOFA' and 'PIDE' mean. In the case of technical terminology or concept, you may want to briefly define/explain it in the footnote when used the first time. In the case of using more than 4-5 different acronyms in a single document, a list of abbreviations/acronyms must be added at the beginning (after the list of contents).

- FOOTNOTES
  A footnote is a reference, brief explanation, or brief explanatory comment placed at the bottom of a page corresponding to the item cited in the main body text above. Participants may use footnotes (or sometimes *Endnotes*) to define a concept/terminology, explain a phenomenon, and/or add an explanatory comment.

- PAGE NUMBERS '
  A footnote is a reference, brief explanation, or brief explanatory comment placed at the bottom of a page corresponding to the item cited in the main body text above. Participants may use footnotes (or sometimes Endnotes) to define a concept/terminology, explain a phenomenon, and/or add an explanatory comment.

- DATE & TIME FORMAT
  Usually, two '*date*' formats are recommended: [01 January 2022] and [January 01, 2022]. Similarly, two '*time*' formats are recommended: [3:10 PM] and [1510 Hrs]. Whichever date and time format/style you choose (or recommended by the institute or publisher), it should be used consistently throughout the document.

SUBMISSION

Before the final submission, please make sure that you have edited the whole document carefully for an effective, harmonious, and error-free copy. It should be coherent in structure, systematically organised, and free of errors of expression, spelling, punctuation, and grammar. Finally, make sure that your final product is within the prescribed word count. You are now ready to submit your final paper/thesis.

HOW TO BENEFIT FROM YOUR RESEARCH SUPERVISOR

It depends on the habits of both, you and your supervisor. It is suggested that you should explore this arrangement at the very beginning. Discuss engagement strategy and decide how frequently you would meet. Some supervisors are easily accessible in their office for a quick chat, while others prefer scheduled meetings. It also depends on whether you like to ask multiple vague questions and annoy your supervisor with

more frequent visits or send some working draft in advance and seek guidance on specific sections of your research. Following are some tips which may help you to have effective interaction with your research supervisor:

- Set and meet deadlines. Setting small targets and meeting draft submission deadlines are always helpful to achieve the overall research goal.

- Make a habit to take notes during your interaction with the supervisor.

- Go to the meetings well-prepared and make the best out of it. Manage time and resources; both are limited in nature and cannot be wasted.

Not every interaction would be fruitful. It is quite normal. Sometimes, you may come out of the meeting with a dozen more questions and may find yourself lost in a jungle. Remember, anxiety and muddling are quite common. Here, your strategy should be to work and meet smaller targets and bounce back with a clearer plan.

"Policy Research Methods is a necessary resource for students, researchers and practitioners in Pakistan who have the desire to explore research quetions but have lacked formal training in research methodology. The Pakstan-centric discourse in the book makes it easier to understand concepts ilustrated with local examples. The book presents a brief and highly relevant introduction to research methods, offering advice from planning to the final stage of documenting research. Unlike voluminous texts on research methods, the book presents relevant material succinctly so that new and emerging researchers can have ready access to diverse dimensions of research methodology. I find the book a valuable resource for researchers in Pakistan and other developing countries and strongly recommend it to students and practitioners alike."

Murtaza Haider, *Ph.D., is a Professor of Data Science & Real Estate Management at the Toronto Metropolitan University in Canada. He is the author of 'Getting Started with Data Science: Making Sense of Data with Analytics.'*

"It's an essential handbook for practitioners (generalists) who are not professional researchers but often have to rely on data and evidence for decision-making. Three things make this book enormously valuable for practitioners: (a) understanding of why they should learn research methods; (b) how can research skills enhance their personal and professional effectiveness in managing decision; and (c) it provides simple and concise guidelines at every step of the research process with relevant and practical examples."

Mohsin Mushtaq Chandna *is Secretary, M/o Information Technology & Telecommunication, and former Director General, NIM Karachi. He one of the senior most civil servants of the Pakistan Administrative Service.*

"An excellent guide to research methods that is rigorous, accessible, and tailored to the needs of students and practitioners. This is a very timely and useful resource that would help you to conceptualise, design, and conduct meaningful research. A hugely commendable act of public service by one of Pakistan's brightest young researchers."

Adeel Malik, *Ph.D. (Rhodes Scholar, Oxford), is Associate Professor of Development Economics, University of Oxford, UK. He also holds the Globe Fellowship in the Economies of Muslim Societies at the Oxford Centre for Islamic Studies.*

RASTA

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