

## Unit 1: Scientific Investigation and Ethics

### *In this unit we shall:*

- Introduce the elements within the scientific method.
- Introduce the various aspects of ethical issues in research, and by extension, in professional practice.

### *On completion of this unit, you will be able to:*

- Differentiate between inductive and deductive reasoning.
- Understand why ethics are important and how they may relate to your area of research and your professional practice.

### **Reflection:**

**Research** is described as the methodical consideration and investigation of a particular issue or problem using scientific methods. Research can also be referred to as an academic pursuit. According to a quote attributed to the American sociologist Earl Robert Babbie, “Research is a thorough study to characterize, explain, forecast, and manage observed events”. In this illustration, both induction and deduction are put into use.

Research methods that evaluate an observed event are known as **inductive research** methods, while research methods that verify an observed event are known as **deductive research** methods. On the other hand, inductive approaches are more commonly connected with qualitative research, and deductive methods are more commonly associated with quantitative analysis (QuestionPro., 2021).

### **Differentiate between inductive and deductive reasoning (Miessler, D. 2020)**

	<b>Inductive Reasoning</b> “Inductive reasoning is exemplified by using specific instances as a basis for drawing broader generalizations (Keiling, H., 2019).”	<b>Deductive Reasoning</b> “Deductive reasoning is the process of beginning with a general assumption and supporting it with specific examples or pieces of evidence (Keiling, H., 2019).”
1.	When selecting what time you should leave for work, you consider the traffic flow.	Developing a successful marketing approach for a certain demographic of consumers.
2.	Introducing a new accounting approach that is based on how users interact with the program.	Arrangement of a store's merchandise and consumers to maximize sales.
3.	Choosing incentive packages based on responses to an employee survey.	Developing a spending strategy to earn the highest potential return on your money.
4.	Changing the time or agenda of a meeting in reaction to the level of enthusiasm brought by participants.	Priority is placed on identifying the most efficient means of connecting with clients.

In contrast to **morality**, which is more of a community intersubjective appraisal of what is good, right, or just for everyone, **ethics** is more of an individual evaluation of values based on how relatively good or bad they are (Walker, P., & Lovat, T., 2019).

However, morality and ethics are in contradiction in this circumstance. Although many people use the terms interchangeably, they refer to activities that are either "right" or "wrong," and they have distinct meanings. While ethics refers to externally imposed laws, such as codes of conduct, morals refer to an individual's internally held ideas of what constitutes appropriate and inappropriate behavior (Mitchell, J., 2018), (bcs.org., 2018).

### **Why ethics are important and how they may relate to your area of research and your professional practice?**

When doing research, it is important to follow ethical rules for many reasons (Resnik, D., 2020).

- First, standards help **achieve the goals of research**, such as learning new things, searching for the truth, and avoiding making mistakes.
- Second, **ethical norms encourage important ideas for working** together, like trust, accountability, mutual respect, and fairness. This is especially important when it comes to research, which often requires a lot of cooperation and coordination between many different people working in many different fields and organizations.
- Third, several ethical standards make sure that researchers can be held **accountable by the public** by making them follow certain rules.
- So that research can keep going, ethical standards in the scientific **community help to get more people to support it**. People are more likely to give money to a study project if they trust the results and think they are fair.
- In conclusion, many research standards promote a wide range of **extra moral and social values**, such as social responsibility, human rights, animal welfare, following the law, and public health and safety. These are just some of the times. When it comes to research ethics, mistakes can hurt both people and animals, as well as students and the public.

### **Codes and Policies for Research Ethics:**

The following are the code and policies for research ethics are given below. we have to keep in mind while doing the research.

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|----------------------------|-------------------------------|
| 1. Honesty                 | 9. Competence                 |
| 2. Transparency            | 10. Non-Discrimination        |
| 3. Objectivity             | 11. Confidentiality           |
| 4. Intellectual Property   | 12. Responsible for mentoring |
| 5. Accountability          | 13. Legality                  |
| 6. Integrity               | 14. Openness                  |
| 7. Responsible Publication | 15. Social Responsibility     |
| 8. Carefulness             |                               |

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