



# Research Methods & Technical Writing

Lesson 12 - Week 12

Ethics and Responsibility in Scientific research

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# Flashback from Lesson 11

- The research needed for social practice can best be characterized as research for social management or social engineering. It is a type of action research, a comparative research on the conditions and effects of various forms of social action, and research leading to social action.
- Action Research is organized, investigative activity, aimed toward the study and constructive change of given endeavor by individual or group concerned with change and improvement.
- Action research cycle steps are: diagnosing, action planning, action taking, evaluating and specifying learning.
- A case study is an in depth study of a particular situation rather than a sweeping statistical survey. It is a method used to narrow down a very broad field of research into one easily researchable topic...Whilst it will not answer a question completely, it will give some indications and allow further elaboration and hypothesis creation on a subject.
- Ethnographic research is a qualitative method where researchers observe and/or interact with a study's participants in their real-life environment.
- Grounded theory is a **research method** that will enable you to develop a **theory** which offers an explanation about the main concern of the population of your substantive area and how that concern is resolved or processed."

# Content

- Introduction
- Ethics and responsibility



# Part 1

Introduction

# Introduction

- This is the last lesson in this course, but certainly not the least. The issue of ethics and morality has been one of the central issues in scientific (and social) research.
- Rules and guidelines have changed over the years based on human perception of what is right and what is wrong; kind of confusing isn't it? This is true since different societies are reviewing their values constantly.
- Let's pick a few examples; without naming them, certain societies did not use to allow women to drive some years ago; now they do. The death penalty has been repealed in several societies (some research indicates that it isn't really a deterrent), while in others it is enforced. Other societies are busy promoting same sex unions while others are totally against it. In a nutshell society as a whole is dynamic and progresses in different directions, depending on your personal views.

# Introduction

- Shifting to the scientific front the role of ethics takes center stage especially where life (human or animal) is concerned; the general term used is sentient creatures (able to perceive or feel things). This is in contrast to research where life is not used, for example experiments done in virtual environments in science. In this case experiments are done using software exclusively (perhaps with emulators or simulators) and the data is analyzed thereafter. As shall be seen later in the lesson the application of ethics here is different from the former scenario.
- Let us then define ethics, and morality, as the two go hand in hand literally:
- Derived from the Greek word “ethos”, which means “way of living”, ethics is a branch of philosophy that is concerned with human conduct, more specifically the behavior of individuals in society. Ethics examines the rational justification for our moral judgments; it studies what is morally right or wrong, just or unjust. (Treasury Board of Canada Secretariat, 2015)

# Introduction

- “A system of accepted beliefs that control behavior, especially such system based on morals:
- The ethics of journalism are much debated.
- He said he was bound by a scientist's code of ethics.
- Publication of the article was a breach of ethics.
- The children learned an ethic of hard work from their parents.
- The organization had an ethic of fair play and public service.” (Cambridge Dictionary, 2019)
- Morality on the other hand is defined as follows: “Morality indicates what is the “right” and “wrong” way to behave, for instance, that one should be fair and not unfair to others ([Haidt & Kesebir, 2010](#)). This is considered of interest to explain the *social behavior of individuals living together in groups* ([Gert, 1988](#)).” (Ellemers et al., 2019). Clearly from this definition then, what is morally right in one group might not be necessarily so in another group.

# Introduction

- What then can we say are the moral foundations of research?
- Doing good for humans, animals, the planet, future generations, etc. via the pursuit of truth and knowledge
- Our duty to respect individuals
- Our possible duty to animals
- Our obligations to society
- Source:  
<https://graduateschool.charlotte.edu/sites/graduateschool.charlotte.edu/files/media/Lecture1ResearchEthics.pdf>

# Introduction

- Morality can be further be classified as religious, social, individual or morality and nature.
- So then, what is the difference between morals and ethics? This is a question that many students of research ask themselves, since this is usually a topic in every syllabus involving research studies.
- “Put simply, morals are the customs established by group of individuals whereas ethics defines the character of an individual.” (Surbhi, 2015)
- Table 1 presents a nice comparison of ethics and morality.
- The rest of this lesson discusses different issues related to ethics, such as the types, impact on research, moral foundations, guidelines for ethical research, and so on. In the last part a discussion on responsibility in research concludes the lesson.

Table 1. Morals vs ethics (Surbhi, 2015)

<b>BASIS FOR COMPARISON</b>	<b>MORALS</b>	<b>ETHICS</b>
Meaning	Morals are the beliefs of the individual or group as to what is right or wrong.	Ethics are the guiding principles which help the individual or group to decide what is good or bad.
What is it?	General principles set by group	Response to a specific situation
Root word	Mos which means custom	Ethikos which means character
Governed By	Social and cultural norms	Individual or Legal and Professional norms
Deals with	Principles of right and wrong	Right and wrong conduct
Applicability in Business	No	Yes
Consistency	Morals may differ from society to society and culture to culture.	Ethics are generally uniform.
Expression	Morals are expressed in the form of general rules and statements.	Ethics are abstract.
Freedom to think and choose	No	Yes



# Part 2

Ethics

## 2.1 Types

- There are two types of ethics, descriptive and prescriptive ethics:
- Descriptive ethics: it simply involves describing how people behave and/or what sorts of moral standards they claim to follow. (<https://www.facebook.com/learn.religions>, 2018). An example of descriptive ethics is “most people in this society believe that it is wrong for a person to use swear words”. This refers to the beliefs of that particular society.
- Prescriptive (normative) ethics: “Prescriptive Ethics, also known as, Normative ethics can be defined as the study of ethical action, typically based on what is morally right and wrong. Normative ethics is more practical as it applies to basic human behavior and actions...Prescriptive Ethics involves systematizing, defending, and recommending concepts of right and wrong action (behavior). It also includes arriving at moral standards that guide to act right or wrong. It is an ideal litmus test of identify behavior. For example, is it wrong to kill a person to save many lives?”(Mamgain, 2022).
- What is the importance of knowing all this one might wonder? There are many questions that you will face as a researcher, and it is therefore to have a perspective of how to answer (approach) them. This is like answering the common phrase “to know where you’re coming from” so to speak.

## 2.2 Decision making types

- There are two types of ethical decision making:
- “Deductive or principle based reasoning: A deductive approach is concerned with “developing a hypothesis (or hypotheses) based on existing theory, and then designing a research strategy to test the hypothesis”. It has been stated that “deductive means reasoning from the particular to the general. If a causal relationship or link seems to be implied by a particular theory or case example, it might be true in many cases. A deductive design might test to see if this relationship or link did obtain on more general circumstances”.
- Deductive approach can be explained by the means of hypotheses, which can be derived from the propositions of the theory. In other words, deductive approach is concerned with deducting conclusions from premises or propositions.” (Dudovskiy, 2019a).
- Let’s examine a couple of examples of deductive reasoning.

## 2.2 Decision making types

- **“Premise 1:** A is B.
- **Premise 2:** B is C.
- **Conclusion:** C is A.
- In context, this might look like:
- **Premise 1:** All companies have employees.
- **Premise 2:** Forage is a company.
- **Conclusion:** Forage has employees.
- Another example:
- **Premise 1:** All Forage employees are hardworking.
- **Premise 2:** Annabeth is a hardworking employee.
- **Conclusion:** Annabeth works at Forage.” (Kaplan, 2022)
- Is the second conclusion true? If not, why? Clearly more research is needed.

## 2.2 Decision making types

- When performing research using deductive reasoning the following steps are followed (Dudovskiy, 2019a):
- **Deducing hypothesis** from theory.
- **Formulating hypothesis** in operational terms and proposing relationships between two specific variables
- **Testing hypothesis** with the application of relevant method(s). These are quantitative methods such as regression and correlation analysis, mean, mode and median and others.
- **Examining the outcome** of the test, and thus confirming or rejecting the theory. When analysing the outcome of tests, it is important to compare research findings with the literature review findings.
- **Modifying theory** in instances when hypothesis is not confirmed.
- Figure 1 captures this process succinctly.

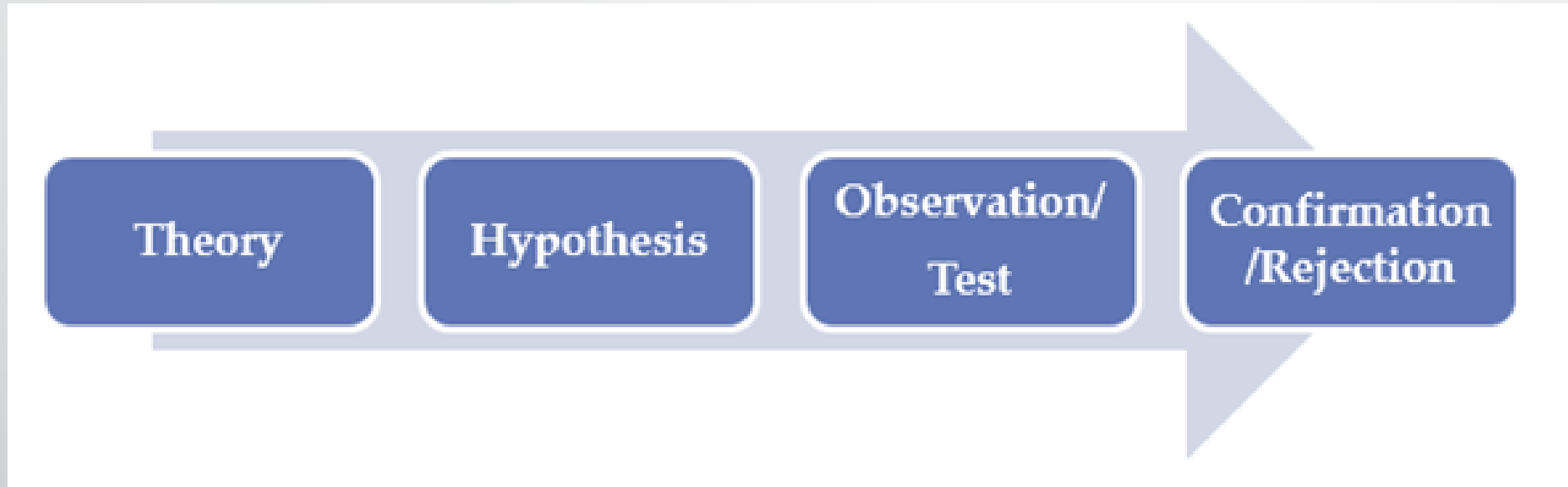


Fig 1. Deductive reasoning approach. (Dudovskiy, 2019a)

## 2.2 Decision making types

- Deductive approach offers the following advantages . (Dudovskiy, 2019a):
- Possibility to explain causal relationships between concepts and variables
- Possibility to measure concepts quantitatively
- Possibility to generalize research findings to a certain extent.
- Inductive (case based) reasoning: “Inductive approach, also known in inductive reasoning, starts with the observations and theories are proposed towards the end of the research process as a result of observations. Inductive research “involves the search for pattern from observation and the development of explanations – theories – for those patterns through series of hypotheses”. No theories or hypotheses would apply in inductive studies at the beginning of the research and the researcher is free in terms of altering the direction for the study after the research process had commenced. It is important to stress that inductive approach does not imply disregarding theories when formulating research questions and objectives. This approach aims to generate meanings from the data set collected in order to identify patterns and relationships to build a theory; however, inductive approach does not prevent the researcher from using existing theory to formulate the research question to be explored. Inductive reasoning is based on learning from experience. Patterns, resemblances and regularities in experience (premises) are observed in order to reach conclusions (or to generate theory).” (Dudovskiy, 2011b)

## Inductive Reasoning vs Deductive Reasoning

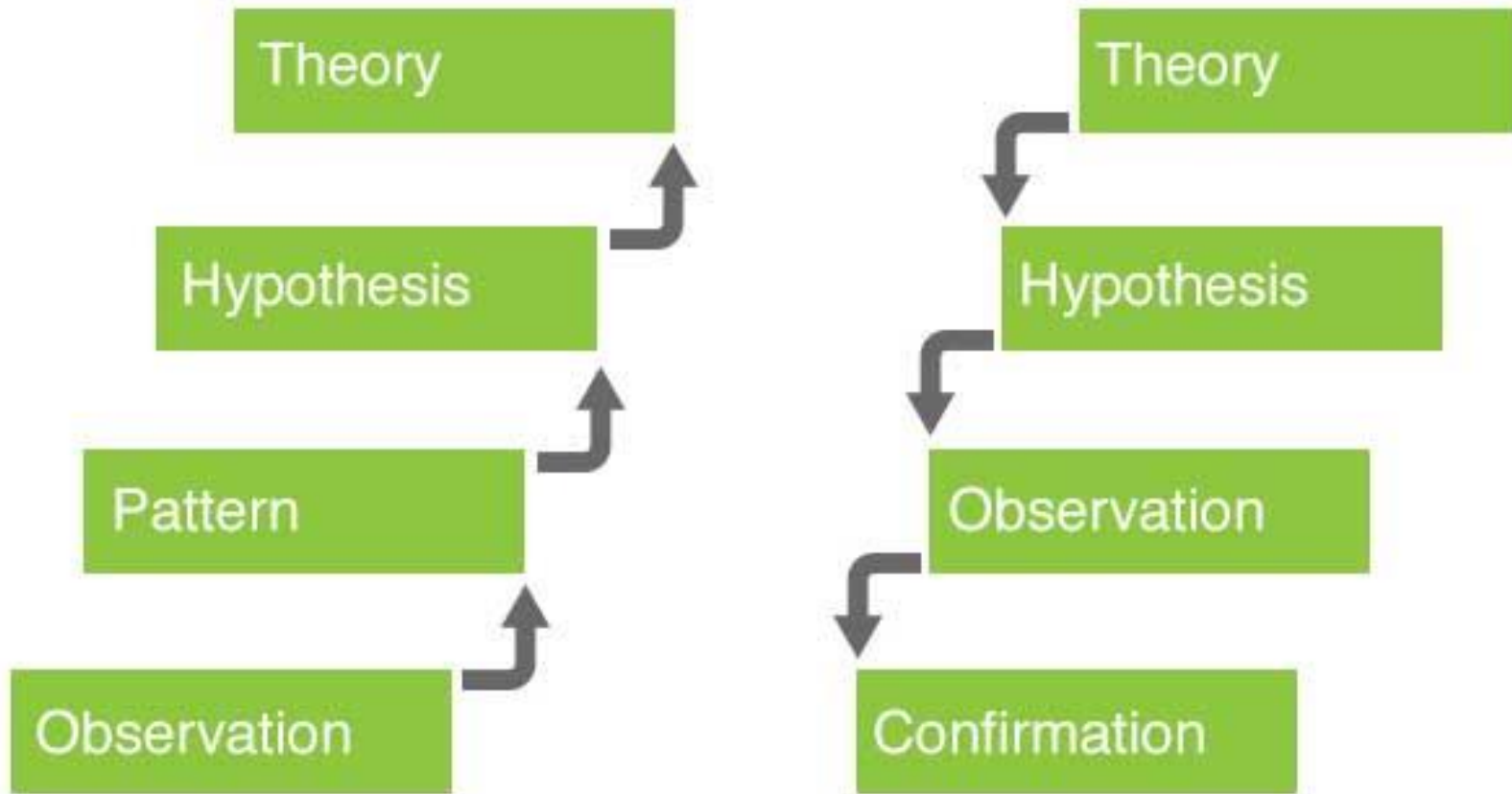


Fig 2. Inductive vs deductive reasoning (Elmansy, 2016)

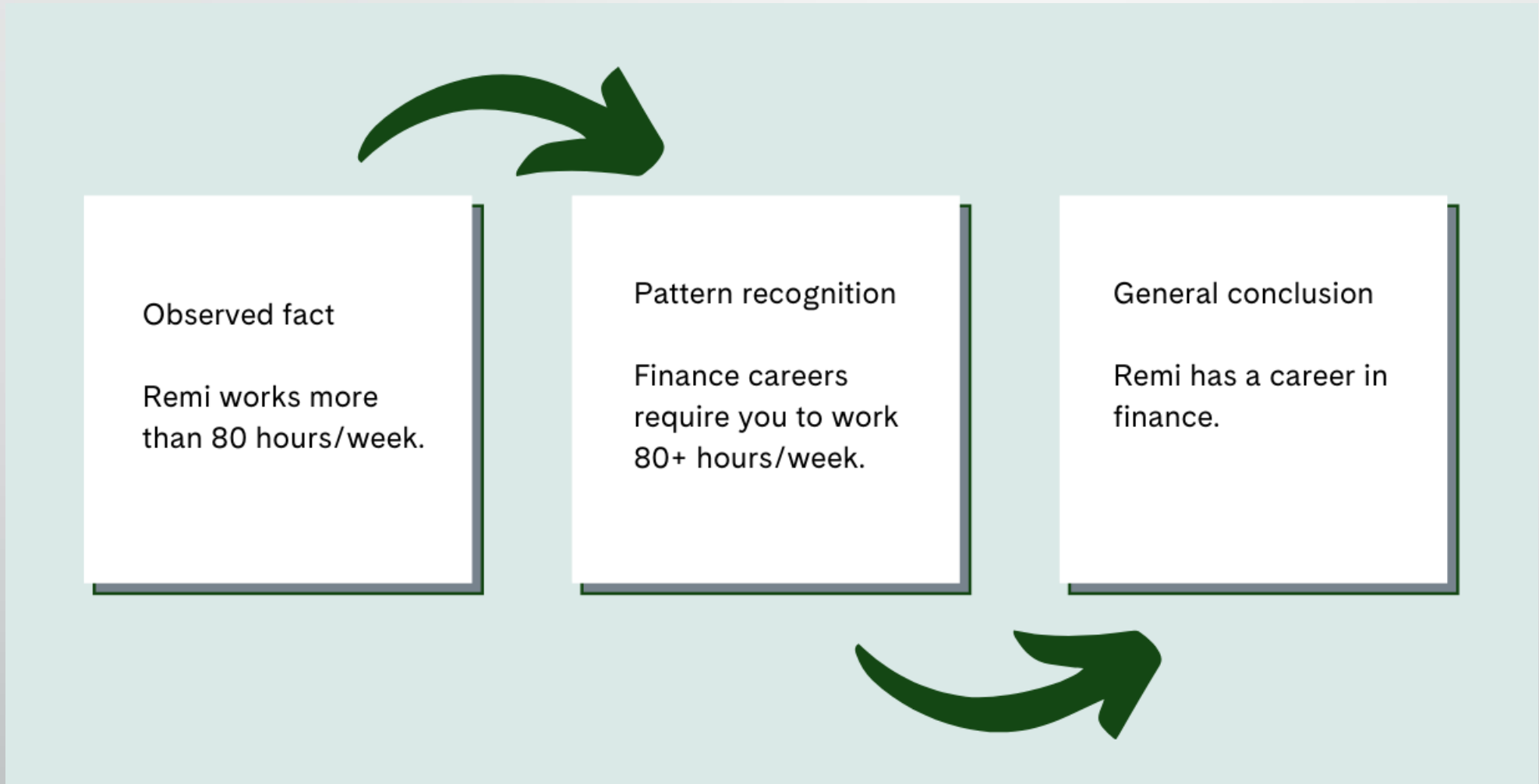


Fig 3. Inductive reasoning example (Kaplan, 2022a)

## 2.2 Decision making types

- Fig 2 compares inductive vs deductive reasoning, while fig 3 demonstrates an example of the used inductive (case based) reasoning.
- It should be now apparent to the learner why it is important to understand the type of reasoning approach to apply in different social/ scientific contexts.
- Anywhere people will be involved in the research (as subjects or respondents) it is of utmost importance to gain their trust and willingness to participate in the study. This is done by showing respect for starters; it will be reciprocated once it becomes clear to the participants that it is there. The target group also more likely to accept (own) the results or findings of the study, and apply them (where applicable).
- Failure to treat subjects with respect can result in data that is misleading, inconclusive, and biased. This is because the respondents can give misleading or false information to sabotage (get back at) you, the researcher. They may also not give sufficient information such as not completing the questionnaires and other tools of data collection.
- In order to prevent this from happening it is important to follow guidelines for ethical practice in research such as the ones shared later in this lesson.

## 2.3 Unethics

- Unethics is a term coined by (Pruzan, 2016) to refer to “behavior that is characterized by the absence of an ethical foundation or motivation.”
- Pruzan (2016) describes three particular areas of concern:
  - 1. Harm to sentient beings and to the environment
  - 2. Lack of informed consent and the invasion of privacy
  - 3. Deception and coercion
- Pruzan (2016) goes on to describe several scenarios of unethical behavior citing several sources of literature that fall under these three categories. We cite a few from him and other sources to demonstrate how these issues have been addressed and discouraged.

## 2.3 Unethics

- “In the report *Responsible Science, Volume I: Ensuring the Integrity of the Research Process* (National Academy of Sciences, National Academy of Engineering, and Institute of Medicine 1992) a panel composed of leading scientists identified a number of ethical problems (which in fact are examples of unethical behaviour) in science. These included:
  - Failing to retain significant research data for a reasonable period of time
  - Maintaining inadequate records, especially for results that are published or relied on by others
  - Not allowing peers to have reasonable access to unique research materials or data
  - Inadequately supervising research subordinates or exploiting them
  - Conferring or requesting authorship on the basis of services/contributions not significantly related to the project reported on—and omitting someone from the list of authors who did make a significant contribution
  - Using inappropriate methods to enhance the significance of findings
  - Misrepresenting speculations as fact or releasing preliminary results, particularly in the public media.” (Pruzan, 2016)

## 2.3 Unethics

- Another sad experience of unethics is provided in (Marczyk et al., 2010): “In 1932, the U.S. Public Health Service began a 40-year longitudinal study to examine the natural course of untreated syphilis. Four hundred Black men living in Tuskegee, Alabama, who had syphilis were compared to 200 uninfected men. Participants were recruited with the promise that they would receive “special treatment” for their “bad blood.” Horrifyingly, government officials went to extreme lengths to ensure that the participants in fact received no therapy from any source. The “special treatment” that was promised was actually very painful spinal taps, performed without anesthesia—not as a treatment, but merely to evaluate the neurological effects of syphilis. Moreover, even though penicillin was identified as an effective treatment for syphilis as early as the 1940s, the 400 infected men were never informed about or treated with the medication. By 1972, when public revelations and outcry forced the government to end the study, only 74 of the original 400 infected participants were still alive. Further examination revealed that somewhere between 28 and 100 of these participants had died as a direct result of their infections.” How about that?

## 2.3 Unethics

- The Nuremberg Code was the first major international document to provide guidelines on research ethics. The case study described in the previous slide was a gross violation of this code. The code outlines 10 points related to the participation of human subjects in research (Marczyk et al., 2010):
  - 1. The voluntary consent of the human subject is absolutely essential.
  - 2. The experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods or means of study, and not random and unnecessary in nature.
  - 3. The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problem under study, that the anticipated results will justify the performance of the experiment.
  - 4. The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.
  - 5. No experiment should be conducted, where there is an a priori reason to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.

## 2.3 Unethics

- 6. The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the experiment.
- 7. Proper preparations should be made and adequate facilities provided to protect the experimental subject against even remote possibilities of injury, disability, or death.
- 8. The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required through all stages of the experiment of those who conduct or engage in the experiment.
- 9. During the course of the experiment, the human subject should be at liberty to bring the experiment to an end, if he has reached the physical or mental state, where continuation of the experiment seemed to him to be impossible.
- 10. During the course of the experiment, the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill and careful judgment required of him, that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.

## 2.3 Unethics

- “Example 18. Melanoma was transplanted from a daughter to her volunteering and informed mother, ‘in the hope of gaining a little better understanding of cancer immunity and in the hope that the production of tumor antibodies might be helpful in the treatment of the cancer patient.’ Since the daughter died on the day after the transplantation of the tumor into her mother, the hope expressed seems to have been more theoretical than practical, and the daughter’s condition was described as ‘terminal’ at the time the mother volunteered to be a recipient. The primary implant was widely excised on the twenty-fourth day after it had been placed in the mother. She died from metastatic melanoma on the four hundred and fifty-first day after transplantation. The evidence that this patient died of diffuse melanoma that metastasized from a small piece of transplanted tumor was considered conclusive.” (Beecher, 1966)
- These and many other cases raise doubt regarding unethics...

## 2.4 Guidelines for ethical practice

- The Belmont report was produced in 1979 for the protection of human subjects. The report is summarized hereunder by Marczyk et al.(2010):”
- **1. Respect for Persons:** Respect for persons incorporates at least two ethical convictions: first, that individuals should be treated as autonomous agents, and second, that persons with diminished autonomy are entitled to protection. The principle of respect for persons thus divides into two separate moral requirements: the requirement to acknowledge autonomy, and the requirement to protect those with diminished autonomy.
- **2. Beneficence:** Persons are treated in an ethical manner, not only by respecting their decisions and protecting them from harm, but also by making efforts to secure their well-being. Such treatment falls under the principle of beneficence. The term “beneficence” is often understood to cover acts of kindness or charity that go beyond strict obligation. In this document, beneficence is understood in a stronger sense, as an obligation. Two general rules have been formulated as complementary expressions of beneficent actions in this sense: (1) do not harm, and (2) maximize possible benefits, and minimize possible harms.

## 2.4 Guidelines for ethical practice

- **3. Justice:** Who ought to receive the benefits of research and bear its burdens? This is a question of justice, in the sense of “fairness in distribution” or “what is deserved.” An injustice occurs when some benefit to which a person is entitled is denied without good reason, or when some burden is imposed unduly. Another way of conceiving the principle of justice is that equals ought to be treated equally. However, this statement requires explication. Who is equal and who is unequal? What considerations justify departure from equal distribution? Almost all commentators allow that distinctions based on experience, age, deprivation, competence, merit, and position do sometimes constitute criteria justifying differential treatment for certain purposes. It is necessary, then, to explain in what respects people should be treated equally. There are several widely accepted formulations of just ways to distribute burdens and benefits. Each formulation mentions some relevant property, on the basis of which burdens and benefits should be distributed. These formulations are (1) to each person an equal share, (2) to each person according to individual need, (3) to each person according to individual effort, (4) to each person according to societal contribution, and (5) to each person according to merit.”

## 2.4 Guidelines for ethical practice

- As a way of describing the matters of concern for ethical practice, reference is made to the guidelines by Pruzan(2016), who himself adapted from the University of Pittsburgh; this is a document in the public domain and addresses 13 issues of ethical concern in research:”
- 1. Plagiarism: The guidelines define “Plagiarism” as: (a) the theft of intellectual property, i.e. presenting the “words, data, or ideas of others with the implication that they are their own, without attribution in a form appropriate for the medium of presentation” and (b) the misuse of privileged information (information taken from grant proposals made by others or from manuscripts received for peer review). In other words, according to the guidelines, plagiarism involves not giving explicit credit (in the form of quotes, references) to sources one uses, no matter whether they are published or not and whether they are written or oral or material on a website...Furthermore, the need to cite the work of others and to provide reference to the original source only applies if there is “word-for-word copying beyond a short phrase or six or seven words of someone else’s text...”
- 2. Misuse of Privileged Information

## 2.4 Guidelines for ethical practice

- 3. Data
- (a) Integrity of Data - : Closely related to the concept of plagiarism, the guidelines underscore the need for the “Integrity of data”, including the avoidance of charges of the fabrication of data and of falsifying data so as to support one’s hypotheses, both of which are considered to be serious forms of misconduct...The guidelines draw upon another document here, the university’s Guidelines on Data Retention and Access: “Records should include sufficient detail to permit examination for the purpose of replicating the research, responding to questions that may result from unintentional error or misinterpretation, establishing authenticity of the records, and confirming the validity of conclusions.” ...To protect human subjects, data regarding them should be stored in such a manner as to insure privacy/confidentiality...Furthermore, the Guidelines emphasize the need to manage data that have been generated and stored electronically
- (b) Use and Misuse of Data - all relevant observations must be reported, including data that contradict or fail to support one’s conclusions.

## 2.4 Guidelines for ethical practice

- (c) Ownership of and Access to Data - guidelines emphasize that research data belong to the university, not to the individual researcher. It is argued that it is the university that can be held accountable for the integrity of the data and that it is the university that is the recipient of sponsored research awards, not the individual researcher.
- (d) Storage and Retention of Data - The guidelines state that data must be stored securely for at least seven years after the completion of a project, submission of the final report to a sponsor, or publication of the research, whichever comes last.
- 4. Authorship and Other Publication Issues: guidelines emphasize that sponsors may not be granted a veto right as to what may be published, but they may be allowed to delay publication for at most six months to permit filing a patent application.
- (a) Criteria for Authorship - many professional associations and research journals also have established such criteria. A common standard is that each person listed as an author should have participated in formulating the research problem, in interpreting the results, and in writing the paper, and should be prepared to defend the publication against criticism; authors who do not meet the criteria should not be listed.

## 2.4 Guidelines for ethical practice

- (b) Order of Authors – this is normally dependent on the discipline
- (c) Self-citations - Correct self-citation conveys the level of originality in a publication accurately and enables readers to understand the development of ideas over time. However, different literature state that there is no honest reason to do so then it is unethical conduct.
- (d) Duplicate Publication – this is a contentious area for various reasons, but it is not recommended to submit to more than one journal.
- (e) Accessibility of Publications
- (f) Early Release of Information About to be Published – not ethical
- 5. Interference
- 6. Obligation to Report: it is the obligation of the scientific community to report any suspected research misconduct.
  - (a) Reporting Suspected Misconduct
  - (b) Correction of Errors
- 7. Curriculum Vitae

## 2.4 Guidelines for ethical practice

- 8. Conflict of Interest: An example of how such a potential conflict of interest can arise is the case where a researcher's personal financial interests may lead him to compromise the integrity of the research or to research misconduct, for example by the distortion of research outcomes. Preventative measures mentioned in the Policy (\*conflict of interest policy\*) include the mandatory annual disclosure of outside interests, the possible divestiture of such financial interests and the public disclosure of such outside interests; many journals and funding agencies also require such disclosures. Another example of a situation where a conflict of interest can arise is when a researcher is asked to enter into peer review of a manuscript or a proposal (for example, in cases where the reviewer is writing on the same topic or is seeking financial support for research in the same area). In such cases the researcher should disclose any conflict of interest with respect to the matter under review.
- 9. Responsibilities of a Research Investigator

## 2.4 Guidelines for ethical practice

- 10. Responsibilities to Funding Agencies
- 11. Special Obligations in Human Subject Research – see the Nuremberg code discussed earlier in the lesson
- 12. Laboratory Animals in Research
- 13. Research Involving Recombinant DNA (rDNA)""
- These guidelines are by no means exhaustive but they do provide insight into key ethical issues that institutions (academic and pure research) should address when it comes to ethics. Different universities have different guidelines which can be found online; however, the issues of concern when it comes to ethical practice are generally along the same lines.
- A site to visit where different articles have been retracted due to different ethical issues is <https://retractionwatch.com/> . The reasons for retraction are given and give good insight into these ethical issues.

## 2.5 Responsibility

- The issue of responsibility for a scientist is more of a personal one rather than a community one. Pruzan (2016) poses the following for reflection regarding responsibility: " Ethics has a demand: the scientist must assume responsibility for the way that his or her research can affect others, including nature itself. Therefore he or she must reflect not only on how results will be accepted by the scientific community, but also on how they will be accepted by all those who may be affected, directly or indirectly, by both the investigations and the results."
- Two key questions arise from this (Pruzan, 2016):"
- 1. Is a distinction between basic research and applied research relevant for one's responsibility as a scientist?
- 2. Is there a clear distinction between beneficial and detrimental research?"

## 2.5 Responsibility

- To offer some insight into this Pruzan (2016) observes the following regarding the first question: “
- the distinction between basic and applied research is not nearly as clear as text books imply...The classical distinction between basic and applied research whereby there is a difference between the responsibility of a physicist working on basic theories as to the atom and a physicist working on the theoretical problems in connection with the design of an atom bomb became unclear; in 1945 basic research lost its innocence and could no longer be seen in isolation from political, military, social and commercial processes. It became clear that the individual scientist was a part of the world—and had responsibilities for the world, no matter whether his research was basic or applied...(in today’s world) The distinction between basic and applied research is becoming increasingly amorphous...Research in fields such as high energy physics or the human genome is no longer just a matter of the acquisition of basic knowledge, but is part and parcel of huge systems financed by enormous military, political and commercial organizations with their own interests, often quite hidden from the individual scientists who carry out the research...”

## 2.5 Responsibility

- Regarding the second question Pruzan (2016) observes the following: “
- History has shown us time and time again that what we think may be beneficial results of research, may also be destructive; a good example is DDT...On the other hand, research that knowingly leads to technology that is potentially destructive cannot simply be frowned on by a scientist, the world is not that simple. Knives can be used both by murders and cooks and surgeons. Animal testing that leads to harm to some living creatures, the animals, can in some cases also improve the conditions of other living creatures, humans...

## 2.5 Responsibility

- In conclusion to the second question Pruzan (2016) gives this parting shot:
- Based on “research into his research”, seeking guidance from his inner compass, and utilizing his powers of discrimination, each scientist must determine as best he can whether or not to work for a particular research institution, whether or not to contribute to a particular research project, and if so how best to do this in a responsible manner. But having made such a choice does not relieve the scientist of the responsibility of continually reflecting on and reassessing his responsibilities. Life is complex. Science is complex. That is their beauty and challenge to us all. In spite of the difficulties and the lack of clear cut answers, scientists have a responsibility of using their heads and their hearts so as to determine, delimit, and live up to their responsibilities as scientists, human beings and citizens of the world.”

# Summary (1 of 2)

- Ethics is a branch of philosophy that is concerned with human conduct, more specifically the behavior of individuals in society.
- Morality indicates what is the “right” and “wrong” way to behave, for instance, that one should be fair and not unfair to others.
- The moral foundations of research are doing good for humans, animals, the planet, future generations, etc. via the pursuit of truth and knowledge; our duty to respect individuals; our possible duty to animals, and our obligations to society.
- There are two types of ethics, descriptive and prescriptive ethics
- There are two types of ethical decision making: deductive or principle based reasoning, and inductive (case based) reasoning.
- Unethics is a term used to refer to “behavior that is characterized by the absence of an ethical foundation or motivation.”

# Summary (2 of 2)

- The Nuremberg Code was the first major international document to provide guidelines on research ethics (on human subjects).
- The Belmont report provides for protection of human subjects: it provides for respect for persons, beneficence, and justice.
- Every institution should have ethical guidelines that will ensure ethical and responsible research is carried out by its members.

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