Original Research Article

ETHICAL PROCEDURES IN SCIENTIFIC RESEARCH

Abstract

In this article, I aim to highlight the inherent ethical limits of scientific research and provide a framework to ensure that all actors involved in the development of scientific knowledge are protected. This is a theoretical reflection on the ethical dimension of data collection practices and an ethical questioning of data triangulation and research results. To achieve this, I used the hermeneutic method and conducted a literature and document review to consolidate the work presented here.

What documents should be ensured in the research project design process? What is the scope of informed consent and how to preserve the anonymity and confidentiality of data? These and other questions are answered reflectively for those who understand that there is no science without ethics, nor ethics without consciousness.

Comment [U1]: PLEASE NOTE THE ABSTRACT WRITING TECHNIQUES

Keywords: research, ethics, project, anonymity, data, science.

1. Introduction

Comment [U2]: In terms of content, there were no problems, but there were many grammatical errors, as well as mistakes in technical writing such as how to quote, paragraph formatting, and so on.

The ethical dimension of scientific research is increasingly a concern of researchers, but also of institutions and those who authorize the publication of research results. We are in the domain of the ethics of scientific responsibility. It is true that the ethics of virtues has fallen into disuse and Aristotle should understand that Ethics is beyond virtue, although he recognizes it as the foundation of the exercise of humanity of each of us.

"The ethics of responsibility is proper to an individual-subject endowed with autonomy (dependent, like all autonomy). However, responsibility needs to be irrigated by the feeling of solidarity, that is, of belonging to a community" (Morin, 2005, p.100).

Ethics in research is the compass that guides us within the limits of the responsibility we have for and with others. It has to do with the values and principles not only of the individual, as a researcher, but with the entire form of process and development of Science. This vision also means giving meaning and identity to a scientific community.

The concern for data protection, the well-being of participants and informants, but also the legal protection of the researcher and the institution to which he is affiliated, always raise doubts about methodological, technical and ethical guidelines, particularly in the data collection process.

This article aims to be an aid in this ethical reflection on the practice of data collection and a questioning of these research practices. Ethical requirements are the guides for all human guidance. Research is not immune, as a process, to ethical issues. We can list some considerations, but we are aware that others will be omitted precisely because they are natural.

"The right to privacy or non-participation, the right to remain anonymous, the right to confidentiality, the right to count on the researcher's sense of responsibility" (Tuckman, B., 2000, pp. 20-22) are just some imperatives inherent in the consciousness of scientific freedom.

I believe that researchers are honest individuals and that ethical integrity is maintained both in the data collection phase and in the presentation of the final product of their research (report). Since early on, our conscience, like Pinocchio's talking cricket, tells us how to proceed. We may refuse to do what is right, but that does not invalidate the silent voice of the greatest judge we have: our own conscience.

The exhaustion and physical adaptation to the location where the researcher emerges should also be the subject of our ethical reflection. Apathy can also be an enemy, what many refer to as intellectual laziness. This is where presenting communications and research results can be the best protest to avoid falling into mental lethargy. Writing takes time, but on the other hand, this time is limited. This does not mean writing anything just because something has to be written. The rush of written production has its risks, and we must be careful not to "shred our fingers" (Woods, P., 2001, p. 185).

Research itself is already a moral commitment not only to the academy but also to the community. Writing becomes a moral imperative, and we can only do it with others. Therefore, a bibliography of authors, more than guides, forms the set of masters who teach us that we cannot write about emptiness. We are aware that we are not agile with the economy of words, but nothing deters us from knowing that there is much more to learn. "What is written is written. Oh, if it were worth more!" (Woods, P., 2001, p. 201).

I will not discuss scientific ethics in depth here but rather the procedures for instruction and justification for scientific ethics. Doing otherwise would assume that researchers need lessons from an area that cannot be taught, in essence.

2. The instruments of scientific ethics

When I refer to the instruments of scientific ethics, I mean guidelines and material principles that not only serve as the basis for the scientific project's design but also for its process and results.

What documents should be guaranteed, attached or in the body of the scientific work, to have all the information available for anyone who wants to evaluate a research project? I believe the simplest way is to make a list of fundamental documents.

Data collection is probably where ethics are most apparent. Issues such as privacy and anonymity of collected information and participants' autonomy resume the discussion of the transparency and fairness of the process.

“Respecting the autonomy of participants means recognizing their ability to make choices and decisions about their participation in the research, without any kind of coercion or manipulation by the researcher. This implies ensuring that participants receive clear and objective information about the research, in order to understand its objectives and consequences, and ensuring that they can refuse or interrupt their participation at any time, without suffering any kind of retaliation or harm” (Souza, 2008, p. 251).

The issue arises at the level of professional secrecy as a fundamental indicator for public confidence in scientific research. "Scientific research is a socially constructed activity, and public trust in its integrity is fundamental to its success. Those who engage in research must always keep in mind that their actions have consequences not only for the scientific community but for society as a whole" (Bueno, 2016, p. 29).

Thus, scientific research is not an isolated act of the investigator, but a work that has a social and public dimension due to its impact on the everyday life of citizens.

3. Informed, clear and free consente

It is a document that concerns the informed authorization signed by the informant and is provided for by the National Health Council in Resolution 510/2016. Anyone who participates in the research as a data provider has the right to know in a simple, objective, and clear manner the objectives of the study.

In the informed consent, the identification of the investigator, the title and framework of the study should be included. The objectives, method, and techniques that will be used in data collection should also be stated.

"This cooperation agreement, properly clarified, including the agreement of the participants and the confidentiality of the data obtained, should be made before the research procedures are initiated. In the case of students, the agreements require not only the consent of their parents but also of the school management (...), properly explaining the research objectives, the procedures to be developed, and the contents of the questionnaires, tests, and other instruments to be used" (Sousa, B. A, 2005, p.3).

The participant should be informed of the location and time he or she will have to make available, and his or her participation should be voluntary. It is also wise to state whether participation is paid or free. The researcher should also inform the participant of the deadline for the destruction of the collected material, for example, through an audio or video system.

Another important issue is to state whether the study is financed, and if so, it is mandatory to refer to the funding entity. Whether it is a public or private entity, or both. If the project has been submitted to an ethics committee and requested an institutional data protection opinion, then this information should be included in the informed consent. Don't worry if the document ends up being bigger than expected. This is the way to protect everyone involved in the research process.

The greater dimension of informed consent is based on issues of anonymity and confidentiality of data. Anonymity protects participants by ensuring that the identity data records of the informants are not publicly identified. Data confidentiality should ensure that only this or that study is exclusive.

Thus, as researchers, we should never, at any time, ask for personal, professional, or institutional contacts of those who have allowed us to collect data. We can leave the investigator's contact with their identification duly made to the participants. In case of doubt, after data collection, it is the participants who contact the researchers, not the other way around.

In the case of surveys using online questionnaires, a section must be included at the beginning of this data collection instrument, which requires the respondent to indicate that they are over 18 years old and that they freely and knowingly consent to participate in the study. In all cases, whether in-person or online, the respondent has the right to withdraw from participating in the study at any time and without having to justify their decision to the researcher or research team.

4. Data collection instruments

Regarding the list of documents, the data collection instruments should be attached but not filled out. This is what is called a validated scientific instrument, or the zero-phase data collection. Typically, this is considered a pre-test or a literal testing of the research instruments.

The variety of data collection tools is so extensive that there is not enough space to list them all, but some of them are familiar to all of us: scales, individual or focus group interviews, questionnaire surveys, ethnographic notes, journals, observation grids, etc.

"The use of research techniques should be guided by the same ethical principles that guide the research itself. Researchers should be sensitive to the cultural values and social norms of the groups they are studying and should ensure that research participants are treated with respect and dignity. This includes respect for participants' privacy, anonymity, and confidentiality, as well as obtaining their informed consent to participate in the research" (Bueno, 2016, p. 34).

The rights of participants must be guaranteed and respected, and it is our duty to pay more attention to techniques that expose participants more, such as participant observation or ethnographic records. This is even more important when these data have implications for the publication and dissemination of the results.

"Borg and Gall (1989) suggest two processes to safeguard the confidentiality of research data:

1. Collect research data in such a way that no one, not even the researcher, can link the data obtained to each of the subjects who produced it. For example, delivering questionnaires on identical sheets, without any identification, in identical, sealed envelopes returned by mail or deposited in a location where their reception is not recorded.
2. Using a linking system, for example, replacing names with a numerical code that is only known to the researcher" (Sousa, B. A. 2005, p. 37).

The data collection instruments themselves should anticipate not only the risks and benefits of participating in the research but also those of the research itself. For example, one thing is the inherent risks of measuring heart rate during exercise. Another is understanding the importance and added value of a study aimed at assisting the scientific field of cardiology. To minimize the risks of participation, a contingency plan (CNS, Resolution 510/2016) and security measures must be adopted. Here, extra attention is more common in the general health field (Barros, R. B. D. 2002).

"In any medical research involving human subjects, each potential patient must be adequately informed of the objectives, methods, sources of funding, any conflicts of interest, disruptions and foreseeable risks that the research may entail, and any potential health or societal benefits that may result from the research. The potential patient must be informed of their freedom to refuse to participate in the research or to withdraw their consent for participation at any time. After being informed of all of this, the patient's informed, free and clear consent in writing must be obtained" (World Medical Association, 2013, p. 48).

5. Acceptance letter and scientific supervision

In the case of advanced training, master's, doctoral or post-doctoral degrees, a scientific supervisor is required. Whether in master's, doctoral or post-doctoral programs, there is a scientific supervisor who must sign an institutional letter showing their availability to ensure the good functioning of these works from both a scientific and procedural and ethical point of view.

Regarding research projects that do not lead to an academic degree, they always have a main coordinator and local coordinators. They should be the ones to sign the letter of responsibility for the research to be carried out. One way to write this letter is in the form of a commitment of honor.

This commitment is a term of responsibility that implies a real understanding that ethical norms in different contexts (Bento, B. C., 2009) give rise to different responsibilities. That is, those who commit to research, and here the area of social sciences must be very cautious, must be very aware of the implications of their work on vulnerable groups, especially when sensitive data such as gender, sexuality, mental health, etc. are addressed.

6. Institutional declaration of data protection

With the Data Protection Directive (Directive (EU) 2016/680), it was assumed by the entire European Union that "the protection of natural persons in relation to the processing of personal data is a fundamental right" (OJEU, EU Directive, Consideration 1, 2016) and, in this sense, all Member States of the European Union were obliged to transpose this directive into their national legislation. The deadline was 2019. With the improvement of this directive, the internal legal order of directives (EU) 2022/211 and (EU) 2022/228 relating to the protection of personal data, in this case in the criminal domain, was spilled into national law.

It is important to understand that failure to protect data, including in research, has consequences. Therefore, all projects must be accompanied by a data protection statement from the investigator's or research team's institution of origin, which is what is assigned to the Data Protection Officer under the law.

We are all familiar with the famous case of fines imposed on giant technology companies. One of them was fined 745 million euros. These fines can range from 10 to 20 million euros per violation of the General Data Protection Regulation (GDPR). In Article 83 of the directive, we can find the sanctions defined based on criteria such as:

- "The nature and size of the breach.
- Precautions taken by the company to limit risk
- Whether the company notified affected individuals of their breaches
- The type of personal data affected
- The company's history with regard to data privacy issues
- The level of company compliance with its DPA during the remediation period
- How the company responded to GDPR warnings
- The intention regarding the misuse of data, and whether there was negligence

• How much mitigation exists to limit the harm caused to data subjects." from https://www.visitor-analytics.io/pt/blog/quais-sao-as-penalidades-para-o-nao-cumprimento-do-gdpr/

Given the importance of the institutional Data Protection Officer statement, we move on to research partners.

7. Research partners

Data collection often takes place in third-party institutions, i.e., outside the researcher's affiliated institution. This means that data collection can occur in public or private institutions, government or non-governmental organizations, associations, companies, etc.

Wherever it is, the investigator must ensure a written document with a favorable opinion from the entity/entities where they will collect information. If the institution where the data collection will take place is under regional or national government, the investigator must ensure this favorable opinion in writing. For example, if data collection is done in a school, then the Ministry or Department of Education should be aware and authorize it through a written document. This does not preclude a favorable opinion from the school's management and parents in cases of working with minors.

8. Conflict of interests

If applicable, a declaration of no conflict of interests must be made by the investigator and all members of the research team. A situation of conflict of interests is generated between two or more parties, namely by access to privileged information, which may compromise the impartiality of the interpretation of scientific information and/or may affect or influence the collective interest. Conflict of interests can even lead to corruption and crime.

The most effective ways to control conflict of interests, in addition to individual awareness, are through Codes of Conduct and Ethics, or Good Practice Manuals. By

providing declarations of specific situations and requests for abstention from a role, it is possible to prevent conflicts of interests. Most institutions have global policies for the prevention and management of conflicts of interests.

9. Scientific project design

Creating a work map and designing a research project requires many hours of work and deep dialogue between us and our conscience. Scientific and critical debate tends to be the least difficult because, once trained, the method takes care of our scientific doubts.

But "ethics for oneself can be defined as ... resistance to our own inner barbarism. No civilization has been able to reduce the inner barbarism of the human being" (Morin, 2005, p.101). Science quickly realized that it cannot survive without ethics and that ethics must be its ally to be respected.

"In the preparation phase, research is planned and designed, specifying objectives, delimiting the research field, and developing an initial outline that becomes a project when all planning is properly thought out and defined" (Sousa, B. A., 2005, p.79). It is also in this phase that ethical procedures are delineated.

Basic precautions such as identifying the type of study, whether there are external institutions participating in the work, whether there is a data sharing agreement signed between different institutions, and who those entities are, allow huge strides to be taken in the trust of the community, in general.

Being frank about whether the project involves humans, animals, biological materials, etc., and describing the research protocol not only strengthens confidence in the research but also guides us as researchers throughout the process in the theoretical and scientific foundation. Safety and data destruction procedures should also be mentioned. Data cannot remain in the hands of investigators forever, as the research period has a beginning and an end.

Ethics in research allows us to correct methodological and technical procedures, identifying who can participate and who should be excluded. Minors, migrants, pregnant women, people with special needs or mental health problems, prisoners, etc. The criteria for inclusion or exclusion of informants are scientific, but they also bring an ethical and, in some cases, a deontological definition. These criteria allow us to construct samples or groups of informants.

Attached to the initial project and the final research report should be the Curriculum Vitae of the investigator, or all members of the research team if applicable. It should be clear who the leader or principal/local coordinator of the research is. In the case of advanced training, master's, doctoral or post-doctoral degrees, in addition to the investigator's CV, the CV of the scientific supervisor or mentor should also be included. The identification of the investigator(s) should include the following information: name, affiliation institution, email address, and telephone contact.

10. Risks and benefits in research

Those who are willing to provide information and data must be aware of the risks inherent in their participation in the study. It is true that filling out a questionnaire survey can take 20 minutes of our lives, but a blood sample can take much more. Therefore, clear indications should be given by the researcher about what is at stake in the participation of third parties in scientific work.

It is advisable to know, if applicable, what compensations will be given, how much, and how that return will be made. Compensation is a mechanism used to correct or balance something.

In the process of experimental scientific research, compensation can be understood in another way. It means as a technique for controlling experimental groups, that is, as a guarantee that the experimental group and the control group receive identical treatments except for the factor being tested. This ensures that any differences in the results are due to the factor being tested and not other variables.

Final considerations

Those who participated in the research are an integral part of the results. In this sense, the question is simple: if the researcher guaranteed anonymity and confidentiality of the data (Silva, L. O. M., & Nunes, M. D. M. (2009), and how will he/she return the results to the participants?

This can be done in different ways: scientific articles, online publication of dissertations and theses, lectures, conferences, websites for projects or studies. But the return must happen. It is our duty. It is an ethical demand of gratitude. Without the informants and the data, the theory would be empty.

That is why we have an obligation, as researchers, to sign a responsibility statement. Responsibility for scientific progress, but essentially for humanity.

The Declaration of Helsinki of the World Medical Association Ethical Principles for Medical Research Involving Human Subjects serves not only the health scientific area. It is a fundamental guide and combined with Data Protection and the recommendations of the European Union, it reshapes our projects and studies and shows us how far Science can go.

Everything that is alive deserves our respect and our deepest admiration. In fact, what use is science without ethics? Knowing is being able to think, and thinking is respecting the world and everything that inhabits it.

The ethics of knowledge is the deepest struggle we have against despotism, blindness, and lies. Through it, it is possible to understand scientific uncertainties and contradictions, but also those inherent in Ethics itself. It is ethics of knowledge and research because she is a constant dialogue between the one who thinks and builds knowledge with the one who is the real possibility of existence of that knowledge. Respecting the subject and the objective, this pair of the cognitive act, ensures scientific freedom and its quality. But there is another equally important dimension here: the greater the perception of what science does, the greater the cognitive democracy (Morin, 2002).

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