

RESEARCH ETHICS: REALITIES AND PERSPECTIVES (THE CASE OF THE REPUBLIC OF MOLDOVA)

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Abstract

Every scientific research activity involves responsibility on several levels: scientific, moral, social, political, etc. The researcher conducting a research is directly responsible for the results of the research. The central element of any ethics of scientific research activity is the researcher's responsibility towards his work, but above all the results of the scientific activity. The researcher must justify the research, justify the usefulness and validity of the results obtained, try to bring a benefit to society through his research. In view of these aspects, any scientific research should be subject to moral censorship.

In this context, this article aims to present the current situation in the field of ethics and deontology of scientific research in the Republic of Moldova, identifying the progress made by the country in this respect, the existing deficiencies in the field, as well as designing the solutions for the identified problems.

1. Research ethics and Responsible Conduct of Research

Research is based on the same ethical values that apply in everyday life, including honesty, fairness, objectivity, openness, trustworthiness, and respect for others. Over many centuries, researchers have developed professional standards designed to enhance the progress of science and to avoid or minimize the difficulties of research. Though these standards are rarely expressed in formal codes, they nevertheless establish widely accepted ways of doing research and interacting with others. Researchers expect that their colleagues will adhere to and promote these standards. Those who violate these standards will lose the respect of their peers and may even destroy their careers. Researchers have three sets of obligations that motivate their adherence to professional standards. First, researchers have an obligation to honor the trust that their colleagues place in them. Science is a cumulative enterprise in which new research builds on previous results. If research results are inaccurate, other researchers will waste time and resources trying to replicate or extend those results. Irresponsible actions can impede an entire field of research or send it in a wrong direction, and progress in that field may slow. Imbedded in this trust is a responsibility of researchers to mentor the next generation who will build their work on the current research discoveries. Second, researchers have an obligation to themselves. Irresponsible conduct in research can make it impossible to achieve a goal, whether that goal is earning a degree, renewing a grant, achieving tenure, or maintaining a reputation as a productive and honest researcher. Adhering to professional standards builds personal integrity in a research career. Third, because scientific results greatly

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influence society, researchers have an obligation to act in ways that serve the public. Some scientific results directly affect the health and well-being of individuals, as in the case of clinical trials or toxicological studies. Science also is used by policy makers and voters to make informed decisions on such pressing issues as climate change, stem cell research, and the mitigation of natural hazards. And even when scientific results have no immediate applications as when research reveals new information about the universe or the fundamental constituents of matter new knowledge speaks to our sense of wonder and paves the way for future advances. By considering all these obligations toward other researchers, toward oneself, and toward the public, a researcher is more likely to make responsible choices. When beginning researchers are learning these obligations and standards of science, the advising and mentoring of more-experienced scientists is essential. A “scientific standard” refers to the application of these values in the context of research. Examples are openness in sharing research materials, fairness in reviewing grant proposals, respect for one’s colleagues and students, and honesty in reporting research results. The most serious violations of standards have come to be known as “scientific misconduct” [9].

Standards apply throughout the research enterprise, but “scientific practices” can vary among disciplines or laboratories. Understanding both the underlying standards and the differing practices in research is important to working successfully with others.

Ethics are the moral principles that govern a person’s behavior. Research ethics may be referred to as doing what is morally and legally right in research. They are actually norms for conduct that distinguish between right and wrong, and acceptable and unacceptable behaviour. According to the Research Excellence Framework, 2014, research is “a process of investigation leading to new insights, effectively shared.” Research is a multi-stage process. Ethics are central to the research process [13]. Researchers need to take care of various ethical issues at different levels of this process. The reality is there can be ethical concerns at every step of the research process [1].

Even though few aspects of research ethics have been set out in legislation, moral values mostly govern the conduct of research. Ethical considerations have been gaining paramount importance across the research community. With an increase in the public concern about the limits of the inquiry and legislative changes in human rights and data protection, the ethical considerations have come to the forefront in social research. With the advent of technology, more and more ethical issues have been arising in the field of communication research. According to D.B. Resnik research ethics is the common denominator for responsible for the ethical conduct of their research. They have to take care of all the ethical issues at every stage of the research process [12].

In conclusion, researchers have to take the responsibility for the ethical conduct of their own research. Basically, we can state that ethics are researcher's responsibility. The foremost responsibility of a researcher is to take care of the safety, dignity, rights and well-being of the participants. Researchers have to take care of various other issues at different stages of the research process. Both the researcher and participants have an important role to play. Researchers have to take care of the participants’ right and must consider their research from participants' perspective.

1.1. Ethics Committees

Universities in the Republic of Moldova have **Ethics committees** established by the administrative structures (in cases of Universities - Senates) or at the disposal of the head of the institution – the case of the Academy of Sciences of Moldova (approved by its administrative structure). Ethics Committees deal especially with professional ethics and their meetings are organized ad hoc, in

case of necessity. In practice, these committees discuss public behavior of the employees and they function not properly.

The situation is different with "Nicolae Testimiteanu" State University of Medicine and Pharmaceutics. There are 2 Ethics committees in this university – one is dealing with professional ethics issues (as in other universities too) and the second one - the Ethic committee for research - is dealing with evaluation of research proposal. The Ethic committee for research is more organized as far as all the research proposals that were proposed for financing are evaluated for respecting the Ethics and Bioethics Code. At the same time, at the university functions a Chair on Philosophy and Bioethics and its professors gained their specialization in the USA, by means of MA and PhD programs.

The Ethics committee of the Academy of Sciences is composed of 7 persons (as far as in the structure of the ASM were 6 scientific sections – one representative per section and one person from the high hierarchy of the institution). Its members are academicians with reputation in the scientific community and society. Its meetings are organized also ad hoc, based on public information about misconducts in research or in case of somebody's/personal addressing the hierarchy of the institution. This committee was in charge to deal with all research community, at the moment it deals only with issues which arise within Academy's members. Usually, its meetings are closed for other participants. The national research institutes at the moment have no ethic committees. Also, researchers have to rely on their common sense to eliminate and minimize various crucial ethical issues.

Recently, the National Agency for Quality Evaluation in Education and Research approved the legal framework concerning professional deontology and ethics committees:

- The Code of Ethics and Professional Deontology of the Scientific and scientific-didactic staff.
- The Regulation on the organization and functioning of the Ethics Committee of the National Agency for Quality Evaluation in Education and Research in the field of attestation.

Therefore, there is a need for a common framework both at institutional, as well as national level, in addressing the ethical issues in our country. Keeping in mind the aforementioned concerns, the following suggestions may prove to be fruitful:

- The research institutes must establish properly functioning research ethics committees.
- The universities must have properly functioning research ethics committees at the departmental level or faculty level.
- These committees must be committed to high quality, transparent and accountable research ethics throughout the country.
- The committees have also to monitor the progress of the studies.
- Also, the researcher has to update the committees regarding the events and issues and status of the research.

- Rules of conduct have to be submitted to such committees for consideration, guidance, improvement and approval before the beginning of the study.
- At last, the thesis or the research papers have to be submitted for the examination of these committees. - We want to mention that the PhD theses are placed on-line in our country.

2. Current situation in the fields of research and innovation

The Republic of Moldova has engaged in a series of reforms at the moment, including the fields of research and innovation. This reform proposes streamlining the research and innovation system, in particular the process of allocating budget allocations for research and development, innovation and technology transfer projects and increasing the impact of research and innovation on the national economy. This reform also directly focuses on the process of modernization of the research and innovation system (mainly done through doctoral studies and postdoctoral programs). At the moment, PhD studies (3rd cycle) and postdoctoral programs take place in 46 doctoral schools, organized in 19 organization in the fields of research and innovation, some of which form consortia, national and international partnerships with other higher education institutions and scientific research institutions.

The number of enrolled doctoral students has remained relatively stable in the last decade, even with a slight increase in recent years (Figure 1.).

The moderate increase in the number of enrolled doctoral students, against the backdrop of the significant reduction in the total number of students in the Republic of Moldova, can be explained by the changes in the organization of doctoral studies, in maintaining the number of doctoral budget grants at a relatively steady level (the increased interest of the state in promoting young researchers) and the limitation of doctoral positions on the basis of tuition fees. Moreover, the need to meet the requirement for university lecturers to have a scientific degree, according to the provisions of the Code of Education No.152/2014, has also favoured increasing the interest in obtaining the scientific title and the attractiveness of certain areas and the autonomy of the institutions that organize the doctoral studies and the postdoctorate programmes [11].

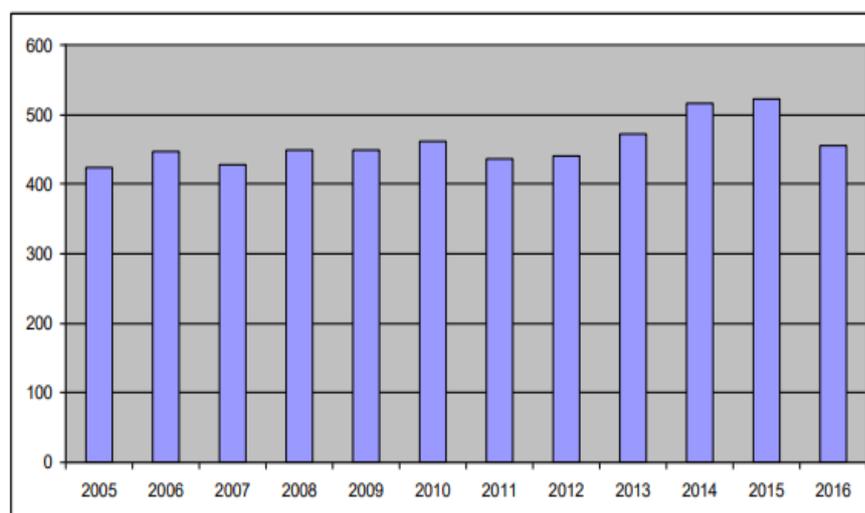


Figure 1. The number of enrolled doctoral students in the Republic of Moldova during 2005-2016

The initiated reform in the fields of research and innovation is aimed at redressing the binary research and educational system of the Republic of Moldova, where universities mostly focus on "teaching" and research institutes on "research". The circulation of knowledge and human resources in the country's public system is now more important than ever. Stimulating cooperation between universities (where younger generations are studying) and research institutes (with senior research staff) should be a driving force behind reforms and increasing the attractiveness of PhD.

Also, the fast review of the framework conditions for innovation through the implementation of a coherent set of public policy measures to create and stimulate an environment in which business involvement in research and innovation is supported, (a legal environment to support spin-offs and knowledge transfer, better funding opportunities for risky projects), and increased use of public funding for business research and innovation are necessary.

Doctoral studies represent a means of interconnecting research and education, reflecting these trends, one of the most important being *internationalization*. Institutions choose to internationalize their studies mainly for the following reasons:

- Increasing the quality of education and research;
- Effective preparation of students for life and professional activity in a dynamic economic environment;
- Increasing the international reputation and visibility of the institution;
- Creating strategic partnerships with internationally renowned institutions, thereby also enhancing the awareness of their own institution;
- Diversification of attracted financing sources;
- Attracting new partners from the economic environment (e.g. multinational companies), following the international openness of the institution [10].

The internationalization of doctoral studies is also of particular importance in European strategic documents. Among the many trends shaping the face of modern higher education few are as powerful and tangible in their impacts as internationalization [14]. The fact that internationalization of education has remained prominent on the global agenda is easily explainable taking into consideration the number of challenges it poses to national educational systems. One of the most obvious is connected with the by-effects of globalization. Accessibility and diversification of labour markets combined with the increased job and academic mobility stirred competition to an extent when "it is the market, not the state, that is the instrument for shaping educational values", spurring educational institutions into "interconnectedness and multi-level, multi-directional relationships" and bringing about the "culture of accountability" [6]. Also, the significance of curricula internationalization has long been recognized by scholars and a lot has been said about acute necessity of globally competent educators [6]. Curricular change is shown as a "powerful and practical way to bridge the gap between rhetoric and practice" [7].

Internationalization is an essential component for the development of research quality and doctoral education in research and innovation organizations. At the same time, international experience is

essential for the professional development of PhD students, regardless of their field and career [5]. Therefore, universities and research institutes should address the internationalization of PhD in a coherent and strategic way.

Doctoral studies/programs are seen as an important element in increasing the international attractiveness of European universities, and the promotion of international cooperation and doctoral mobility has become an integral part of institutional strategies. The ways in which internationalization is carried out are varied: joint doctoral programs, doctoral studies in fellowship, European doctoral studies, international and trans-sectoral mobility schemes, internal internationalization of European universities (more international staff, summer schools and international conferences, etc.)

As a result of the policies promoted, doctoral studies in developed countries are increasingly international. One in ten students at the master's or equivalent level is an international student in OECD countries, rising to one in four at the doctoral level. Almost 60% of international doctoral students in OECD countries are enrolled in science, engineering or agriculture. The United States hosts 38% of international students enrolled in a programme at the doctoral level in OECD countries. Luxembourg and Switzerland host the largest proportion of international students, who make up more than half of their total doctoral students. International master's and doctoral students tend to choose to study in countries investing substantial resources in research and development in tertiary educational institutions. Of all international students enrolled at the master's or doctoral level across OECD countries, the majority (53%) are from Asia, and 23% are from China alone [8]. The number of international PhD students who have obtained in the USA the degree in science and engineering has increased to 51% in 2003. Also, universities in the United States award more PhD degrees than those in any other country [2].

For the Republic of Moldova, the internationalization of doctoral studies is important, also in the context of the necessity of providing a critical mass of resources and competencies, especially in the context of the minimization of the number of local students. International experience shows that in order to increase the level of internationalization it is necessary to allocate more consistent resources for this purpose, financial and human, to conclude institutional agreements with universities from other countries, to stimulate international mobility through the process of assessment and accreditation of doctoral schools. All these activities should be carried out under an umbrella - a coherent and clear internationalization strategy that takes into account local specific (the risk of human resource emigration) and be linked to policies in related fields.

The participation of foreign experts in the evaluation of PhD thesis in the Republic of Moldova is another indicator that characterizes the internationalization of doctoral studies. During 2014-2017, 309 experts from abroad were included in the Specialized Scientific Councils (SSC), which represents 17.6% of all SSC members. In scientific fields, the share of foreign experts does not vary significantly, from 14.5% in natural sciences and agricultural sciences to 20% in engineering sciences and technology (Figure 2.).

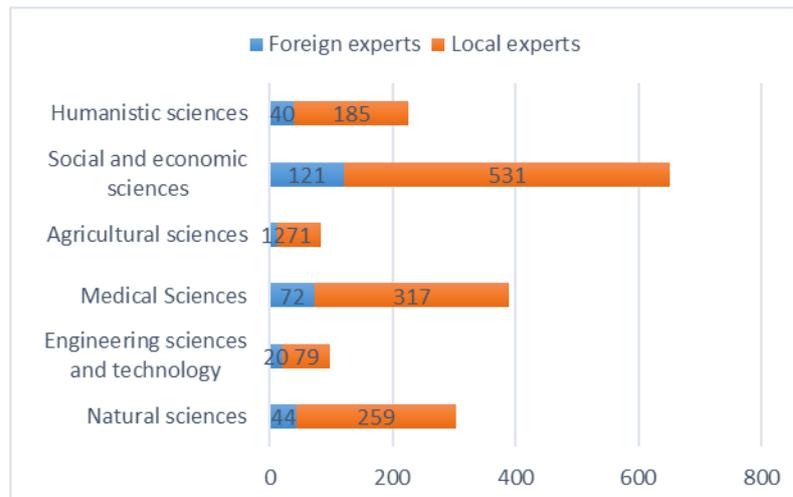


Figure 2. Number of foreign and local experts in the Doctoral Thesis Councils formed during 2014-2017, by fields of science

Experts represent 17 countries, most of them being from Romania (243 people), followed by Ukraine (30) and Russia (13). We find that during 2014-2017 the number of foreign experts is relatively high in the SSC and probably, no other evaluation of the scientific, educational or cultural activities in the Republic of Moldova implies such a massive involvement of external experts. They are included in almost all the activities connected to doctoral theses, the thesis of the prestigious scholars from abroad, but also in many other SSC. The involvement of experts from abroad is very important in the conditions of a small scientific community, such as the Republic of Moldova, where it is complicated to avoid conflicts of interest.

At the institutional level, the efforts to internationalize higher education suffer from insufficient financial and human resources and internationalization actions often happen at the initiative of foreign partners. Universities in the Republic of Moldova have not developed yet organizational and managerial capacities to discuss with peer-to-peer partners in international universities. At the individual level, admission as a doctoral student in a foreign university is the effort of the candidate himself; there are no formal mechanisms at the national level to support doctoral mobility. Signing agreements with partner institutions from other countries will allow PhD students from the Republic of Moldova to visit these institutions for a research period or in case of accepting to coordinate doctoral theses and will improve the quality of doctoral studies. In this case, the most important risk of internationalization is the risk of migration of talented and well-prepared human resources (brain-drain), but it could be managed [11].

From different activities of internationalization, organizations in the fields of research and innovation more often enter into partnership agreements with partner institutions and benefit from the mobility schemes offered by international programs, although the number of foreign students and teachers visiting the Republic of Moldova is not high. The reduced number of doctoral students from abroad (PhD students who are not Romanian speakers) does not stimulate the development of doctoral programs in international languages. In conclusion, we must mention that due to the initiated reforms in the fields of research and innovation, the organization and functioning of the doctoral studies have known a steady improvement. The experience of good international practices from different countries will increase the quality of doctoral programmes and studies and will decrease the cases of research misconduct due to Open Access to research data. In this context, it is necessary for the institutions which deal with the fields of research and innovation to follow

international standards in research ethics and integrity (ex. The European Code of Conduct for Research Integrity) and to adopt good practices of research conduct.

3. The shortcomings of the research system:

The poor quality of PhD thesis determined by:

- the concentration of decision-making in small groups of people, by appointing the same persons in different specialized scientific councils (SSC), regardless of the subject of the thesis, based only on tradition, local reputation or titles held;
- excessive formalism in establishing the composition of SSC, which make the defense of interdisciplinary, multidisciplinary theses or those in new specialties for the Republic of Moldova more difficult to defend;
- the participation of the SSC members and the reviewers in the repeated evaluations of the same thesis, as they are often also members of the relevant seminars, expert committees or the primary research unit;
- poorly qualified human resources in the PhD students' training, provided that the doctoral coordinators have a low performance;
- insufficient training of people in competitive scientific fields and in important fields for the country's economic and social development;
- the impossibility of conducting doctoral studies in some fields / specialties, also considering the fact that a scientific coordinator/supervisor can simultaneously guide no more than 5 doctoral students;
- inhibiting the creativity and critical thinking of the doctoral student in the conditions of the total dependence of the doctoral scientific coordinator/supervisor and the possibility of his / her abuses, with repercussions on the level of professional and transversal competencies of the doctoral students;
- conflicts of interest and breach of good conduct norms.
- the existence of ambiguous and contradictory provisions in the drafting of doctoral theses and in the evaluation methodology [3].

Plagiarism and other scientific frauds that manifest themselves through:

- tolerance of conflicts of interest / scientific frauds, determined by the limited size of the scientific community, the limited number of specialists in branches / scientific profiles and the lack of functioning of the reputational mechanisms in the Republic of Moldova;
- the existence of scientific domains / specialties in which the theses are defended "easier" - acceptance of plagiarized theses, written by other authors, without scientific novelty, appointment in the doctoral commissions of a small circle of "comfortable" people, marginalization of people with critical opinions ;

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- the reduced effectiveness of the thesis assessment system, especially in areas/domains where the number of the scientific degrees awarded over the last two decades has increased significantly;
 - the lack of a critical mass of researchers / decision-makers who would like the radical change of the situation;
 - emigration from the system of the best and most sophisticated researchers;
 - the degradation of the academic environment with unfavorable consequences on the way of governance in the Republic of Moldova
 - lack of a structure that would regulate the integrity and ethics of research [4].

4. Solutions for the improvement of the research system:

Achieving a knowledge-based society requires a large number of highly qualified employees, whose knowledge, skills and experience guarantee the society's continuing development and competitiveness. It is important to motivate higher education and research institutions to become more open and competitive. As a result, it will enhance capacity of the Republic of Moldova to hire highly qualified specialists from abroad, or train them here. This will significantly improve general research and innovation capacity.

The solutions for the improvement of research, development and innovation system are:

1. Improving the quality of higher education by supporting the employment of international teaching staff;
2. Expanding the pool of specialists holding PhDs by supporting the enrolment of talented international students in doctoral programmes of universities from the Republic of Moldova;
3. Facilitating international research cooperation by supporting short-term research projects of visiting doctoral students in the Republic of Moldova;
4. Developing international cooperation networks by supporting the mobility of doctoral students from the Republic of Moldova;
5. Supporting the participation of young researchers in the international exchange of knowledge;
6. Taking into account the scientific performance / competence and professional integrity (reputation, conduct) when selecting experts into different committees/councils;
7. Creating a national structure dealing with research ethics and integrity;
8. Establishing a legal framework concerning research ethics and integrity;
9. Ensuring effective and long-term access to publicly funded information and publications (promoting the Open Science concept and the transfer of information, knowledge and technology to the society and businesses).

10. The open access will maximize the access to research outputs, these being distributed online and will make research interconnected and networked. The open access will take ideas to the market and will bring solutions to societal challenges. Also, by means of Open Science scientific research, data and dissemination will be accessible to all levels of an inquiring society.
11. The new methodology of conferring and confirming scientific titles (project) elaborated by the National Agency for Quality Assurance in Education and Research in collaboration with the Ministry of Education, Culture and Research (2019) establishes new criteria of public defense for PhD theses. These criteria contribute to the transparency of the scientific results. They are available for the whole scientific community. In this way, the scientific community will help to foster better relationships among researchers who seek for the same goals and will establish standards of research conduct.
12. In the context of digitalization and electronic governance, the National Roadmap for the Integration of the Republic of Moldova into the European Research Area for 2019-2021 ensures open access to state-funded scientific outcomes through the introduction of digital technologies in all areas of the research and innovation system and encourages and promotes cooperation and knowledge transfer between science, business and society at national and international levels. This fact will be achieved by creating a register of scientific outcomes, by enhancing cooperation and improving the exchange of information between science, business and society and by ensuring effective and long-term access to publicly funded information and publications (promoting the Open Science concept) [15].

In conclusion, we would like to mention that it is important to respect ethical norms in research, as ethical norms **promote the** aims of research, such as knowledge, truth, forbidding fabricating, falsifying, or misrepresenting research data. Also, research involves cooperation and coordination among many people in different institutions and fields, ethical standards promote the **values that are essential to collaborative work**, such as trust, accountability, mutual respect, and fairness. Therefore, the norms of research promote a variety of important **moral and social values**, such as social responsibility, human rights, compliance with the law, and public health and safety.

Also, it is important to underline that communication of the results of research is an essential component of the research process; research can only progress by sharing the results, and the value of the research is maximized through wide use of its results. The Internet gives us the opportunity to bring this information to the audience and to use it in new, innovative ways. This has resulted in Open Access, as it is crucial in promoting the interests of researchers, scholars, students, businesses, and the public.

Additionally, we would like to point out that e-government deals with the development of online services to the citizen, and government to employee is the least sector of e-government in much e-government research. Some researchers consider it as an internal part of this sector and a successful way to provide e-learning, bringing researchers together and encouraging knowledge sharing among them.

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