

Communication and involvement of students and young researchers in animal science: an European perspective

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Implications

Students and young researchers in animal science, veterinary, and biomedical professions encounter motivation and communication problems; it is important to look for new strategies to communicate and involve students and young researchers in animal science, veterinary and biomedical professions; LERU workshops in 2022 and 2024 proposed new methods for student and young researcher involvement by fostering reflection, peer exchange, and engagement with stakeholders from industry, academia, and patient organizations.

Introduction

The general public's opinion is controversial and divided on the use of animals in research. In part, this could be due to a lack of openness and transparency about why and how animals are used in research, and a lack of awareness of the stringent rules and regulations under which such experiments are performed. Universities (as well as other research players) could be more vocal about the benefits which animal use brings to both basic and applied research.

The Concordat on Openness, launched in May 2014 by Understanding Animal Research, represents an important initiative aimed at enhancing transparency and accountability in the use of animals for research purposes (Jarrett, 2016). Over the years, the openness movement has gained momentum, with

many organizations and researchers adopting similar practices across various fields. This has led to greater awareness and constructive dialog surrounding the ethical issues related to animal use in research.

As LERU noted in 2020 in the publication on Good Practice in Communicating Animal Research at Universities, developing an open and transparent approach to animal research within a university can help increase the awareness of the public about animal research (Morosan and Dinner, 2020). Students and young scientists are often very willing to communicate their research, but can lack confidence and a nuanced approach in communicating this sensitive topic.

Effective engagement and communication with students and early-career researchers are essential to the long-term success and sustainability of the animal science, veterinary, and biomedical profession. As societal expectations around animal welfare, scientific transparency, and interprofessional collaboration evolve, so too must the educational strategies that shape the next generation of animal scientists and veterinarians. The challenge lies not only in transmitting technical knowledge, but also in fostering motivation, ethical awareness, and a sense of professional identity through meaningful involvement and communication. This is also true for interacting with so-called activist groups, which may enrich the impact of communication.

Studies in veterinary and animal science education highlight a recurring pattern: students often enter these fields with strong intrinsic motivations, particularly a desire to care for animals, yet they may lack the practical experience and broader contextual understanding required for success (Whitaker et al., 2020). An Irish study found that while veterinary nursing students are deeply committed to animal care, many begin their training with limited animal-handling experience and uneven exposure to veterinary practice. This gap between motivation and preparedness underscores the importance of early, supportive, and realistic engagement strategies to build both skill

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and confidence and avoid the abandonment of their profession (Whitaker et al., 2020).

Moreover the attitude of students to animals depends on different factors: demographic data of the student (age; gender; program; year; meat eater, vegetarian, or vegan; having a current animal; having an animal as a child; previous study; employed work outside university studies) and category of animals (pet, pest, or livestock) (Hazel et al., 2011). The Hazel and colleagues study demonstrated that educational interventions (specifically, courses on animal welfare and ethics) can positively shift students' attitudes toward animals, particularly those in less emotive categories such as livestock or pests (Hazel et al., 2011). Notably, the study found that female students and those with prior animal experience showed higher levels of empathy, suggesting that student background significantly influences how information is received and internalized (Hazel et al., 2011). These findings point to the need for educators to communicate not only facts but values, using inclusive approaches that resonate across a diverse student body (Hazel et al., 2011).

So it is very important to outline the ideal profile for the teachers in veterinary, animal science, and biomedical fields that could better involve students, transmit the knowledge, and form highly qualified professional figures. An American study analyzed the features of the top teachers in animal science, exploring what makes teaching in animal science truly impactful (Whitaker et al., 2020). The authors revealed that award-winning educators go beyond content delivery; they engage students by building rapport, setting high expectations, incorporating humor, and making material relevant and applicable (Dunne et al., 2018).

These teachers prioritize interaction, actively involve students in the learning process, and adjust their communication to meet learners' needs—all of which are critical for fostering deeper involvement and professional development (Dunne et al., 2018).

Together, these studies suggest that involvement and communication must be intentional, empathetic, and context-aware. For students and young researchers to thrive, they must be engaged as active participants in their own learning and development, supported by instructors who recognize the social, emotional, and experiential dimensions of education.

In late 2021, the LERU Protection of Animals for Scientific Purposes (ANIM) group proposed to hold a student workshop on effective communications, including the use of animals in scientific research. The University of Heidelberg's Communication and Marketing Department kindly agreed to organize the event, which took place in 2022, with the participation of 19 students coming from different EU Universities (10 LERU universities represented: 2 from Heidelberg, 17 from other LERU universities).

The aim of this 3-d event was to help early-stage researchers better explain animal science research to a nonspecialist audience. Experts from different sectors informed the participants about the political framework surrounding transparency and the benefits that transparency and communication can bring.

The students heard the experiences of both industry and academia, and considered the effectiveness of external communication tools and how they could better explain their own research. The students also learned about regulation, communication skills, ethics, and new methodological approaches.

When meeting in person, we found that despite differing opinions among student groups regarding animal research, they shared common ground on key issues related to animal research.

Effective communication of students regarding animal research involves addressing the audience's core questions and concerns. Responding to public concerns requires a solid understanding of scientific principles, research design, species-specific animal welfare and care practices, ethical considerations, and regulatory frameworks. Since individuals within a research institution may possess expertise in some, but not all, of these areas, a team-based approach is often the most effective way to communicate this information to the public. Media training for all team members, provided by communication experts, is a crucial element of success. Engaging respectfully with the public differs significantly from communicating with fellow scientists. Whether we are students, scientists, or veterinarians, we are much more likely to succeed in public interactions after receiving professional guidance on content, vocabulary, presentation techniques, and, in some cases, on developing patience and managing emotional responses (Figure 1).

Due to the great success of the Heidelberg workshop, LERU decided to give another opportunity to early-stage researchers to share good practice in the communication of animal research, and in September 2024, a second workshop was held at the University of Milano. Experts from patient and industry associations, policy-makers, journalists, and university teachers discussed with the 22 participants (coming from 15 different EU Universities) about the benefits that efficacious communication and increased transparency on research using animals can bring, and how this can be done in an effective manner.

At the end of the workshop, participants were asked to answer some questions. When they were asked, "What was the most valuable part of the workshop for you?", the most frequent answer was that the most valuable part was definitely the interaction with the other workshop participants. It was great to meet a vast variety of fellow young researchers encountering similar problems in communicating their research. Additionally, it was very valuable for the participant to reflect on my own morals regarding animal use in research and in general. This was triggered by the dialog with experts and the other participants alike. When you are certain in your own view that the use of animals in research is justified and reasonable, you can communicate and educate other people regarding animal experimentation much more effectively. The participants also recognized that the actual core purpose of the workshop, communicating animal research and the accompanying themes such as transparency and dialogue, was invaluable. This summer school experience offered a unique chance to focus on the very real challenges of communicating animal research.

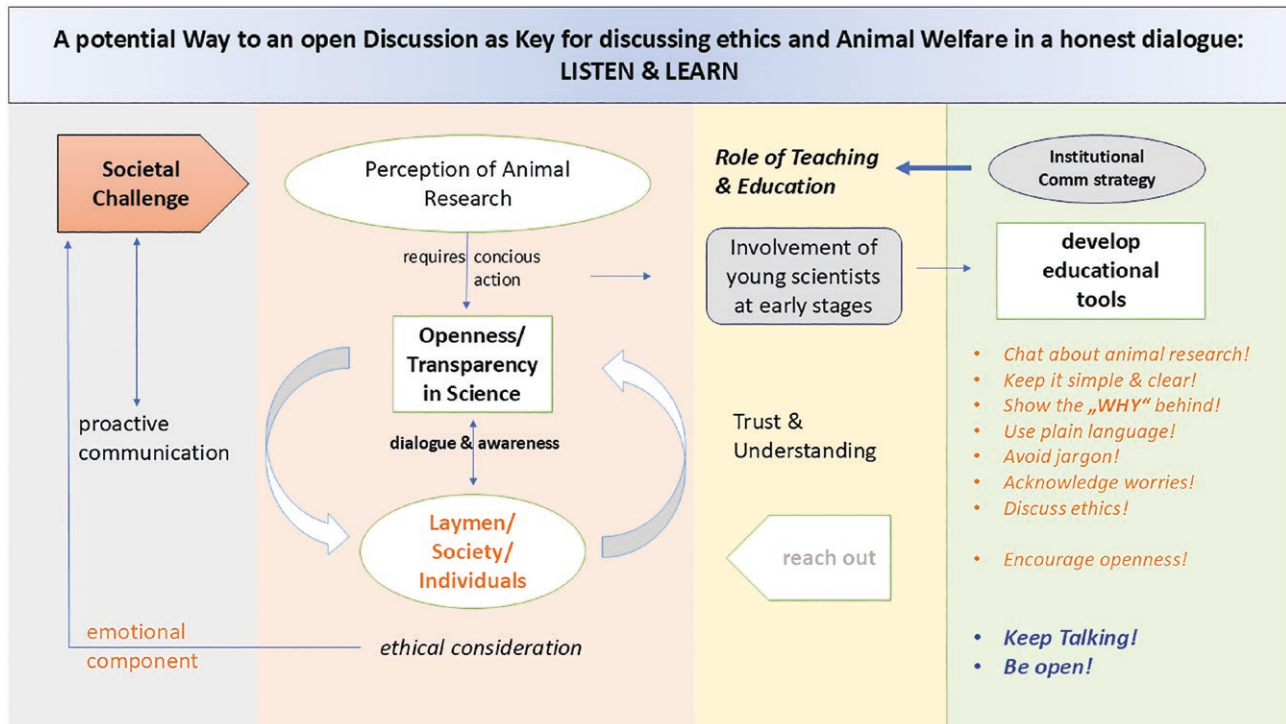


Figure 1. Scheme of starting point, strategy and possible communication devices to reach out to a broader public when talking about animal research involving scientists at an early stage.

The emphasis on transparency in communicating the research results was a take on a message that is so simple and applicable, yet often not widely known or implemented.

Another valuable aspect highlighted by the participants was the possibility to discuss the relevance of animal experimentation with the patients and their families, but also have the opportunity to approach the topic at different levels (e.g. industry's approach, politics, etc.).

Another question was to report any additional comments or suggestions. The suggestions for the improvement of such an event consisted of the insertion of a topic on how to communicate and transfer to participant PI, professors, and universities all the knowledge learn during the LERU Summer school.

After this 2 workshops on effective communication, the young participants revealed that they learned some very important lessons: (a) the principles of good science form the foundation for selecting appropriate models and methods, as well as understanding their limitations; (b) an open dialog is necessary, recognizing that different research fields require different methodologies; (c) the importance of the respect for all kind of public audience both in written and spoken communication; (d) an effective way to communicate about animal research is essential to address the audience's key questions and concerns:

- Why is the study important? What are the intended benefits, and are those benefits realistically achievable?
- Why is the use of animals necessary? Why can't these questions be answered using alternative methods?

- What is the experience of the animals? What happens to them before, during, and after the study?
- What ethical standards guide the research? How was the use of animals ethically justified?
- Who approves the research? What individuals or committees are responsible for evaluating and authorizing the study?

The participants evaluated the LERU Summer School as a meaningful experience that allowed them to enrich personally and professionally.

We could conclude that such events represent valuable instruments to reach out to especially young scientists.

I had never had the chance to interact with researchers from different institutions and actually discuss and compare our research and how we feel about it. It was deeply useful for my own work and professional development, as well as my own personal development in this area. I plan on disseminating this information to my own institution now, and even if they take on only 10% of what was taught, that makes this workshop so worth it.

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Author Contributions

Serban Morosan (Conceptualization, Supervision, Writing—original draft, Writing—review & editing), Federica Riva (Conceptualization, Supervision, Writing—original draft, Writing—review & editing), Giuliano Grignaschi (Conceptualization, Supervision, Writing—original draft, Writing—review & editing), and Sabine Chourbaji (Conceptualization, Supervision, Writing—original draft, Writing—review & editing)

Conflict of interest statement

The authors declare no conflicts of interest.

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About the Authors



Serban Morosan is currently an Associate Professor in Veterinary Virology and Laboratory Animal Science at the Iasi University of Life Science, Romania. As an IULS Veterinary Graduate, his PhD was in viral hepatitis animal models at the INSERM/Pasteur Institute, Paris, France. He is the director of Biological Research Facilities at the Sorbonne University and the vice-president of GIRCOR,

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Giuliano Grignaschi

obtained the diploma for “Pharmacological research technician” issued by the IRCCS-Istituto Mario Negri in 1989 and the degree in Chemical Biological Analysis from the University of Urbino “Carlo Bo” in 2007. From 1989 to 2005, he worked his activity as a researcher in the Department of Neuroscience, Laboratory of Molecular Neurobiology, of the IRCCS-Istituto Mario Negri, publishing around 30 scientific articles in international peer-reviewed journals. From 2005 to 2018, Giuliano was responsible for the Animal Care Unit of the IRCCS-Istituto Mario Negri with the task of ensuring compliance with the regulations (Italian and European) in force regarding the protection of animals used in biomedical research; Giuliano was also Quality Manager in the context of the UNI EN ISO 9001:2008 Certification obtained for the process of assistance in animal breeding and testing dedicated to biomedical research. Since 2019, Giuliano has been Head of the Animal Welfare Office at the University of Milan, where he implemented the quality system according to the UNI EN ISO 9001:2015 standard for the management process of the areas for in-vivo research. Giuliano teaches numerous training and education courses at various Universities, is Vice-President of Animal Research Tomorrow, and General Secretary of Research4Life.



Federica Riva is currently a member of the Department of Veterinary Medicine and Animal Sciences at the University of Milan, where she serves as an Associate Professor. Her scientific expertise lies in microbiology and molecular biology applied to Veterinary Biotechnology and Immunology. She graduated in Veterinary Medicine from the University of Milan in 1998 and obtained a PhD in



Biotechnology Applied to Veterinary and Animal Sciences in 2001. Her doctoral work focused on studying the phenotype of knockout mouse lines for molecules involved in innate immunity, in collaboration with the Mario Negri Institute for Pharmacological Research in Milan. In 2001, she continued this collaboration through a research fellowship from the same institute, further investigating murine models of systemic and local inflammation to assess the phenotype of mice deficient in Tir8, an orphan receptor of innate immunity. In 2002, she was awarded a research grant from the University of Milan, which she had to forgo after winning a public competition for a permanent university researcher position. She then focused on developing molecular diagnostic methods to detect fungal pathogens. At the same time, Professor Riva studied the expression of the c-Kit receptor and the presence of mutations in this molecule in dogs affected by mast cell tumors. Since late 2004, Professor Riva has been working on a new project aimed at identifying and characterizing the TIR8/SIGIRR receptor in various domestic animal species. Throughout these years, she has maintained an ongoing collaboration with Professor Mantovani’s research group, initially at the Mario Negri Institute and currently at the Humanitas Clinical Institute in Rozzano, focusing on the phenotypic analysis of Tir8 and PTX3 knockout mouse lines. More recently, Professor Riva has been studying the immune response of the mammary gland and forestomachs in ruminants in collaboration with IZSLER (Dr. Amadori) and the Università Cattolica del Sacro Cuore in Piacenza (Prof. Trevisi). She has also worked on the relationship between the microbiota and immune system in rabbits fed with different diets in collaboration with Professor Brecchia. As for teaching, Professor Federica Riva is responsible for integrated courses in the Master’s Degree Programs in Veterinary Biotechnology, Medical Biotechnology, Veterinary Medicine, and Animal Production. Since 2020, she has also been Director of the Postgraduate School in Laboratory Animal Science and Medicine, as well as a member of the OPBA (Animal Welfare Body) at both the University of Milan and Humanitas.

Sabine Chourbaji is a behavioral biologist and expert in experimental psychiatry, currently serving as Academic Director and Head of the Animal Facility at the Interfaculty Biomedical Research Facility (IBF), Heidelberg University. She is also a certified Expert in Laboratory Animal Science (GV SOLAS) and Animal Welfare Officer, responsible for ensuring ethical standards in animal research at the institution. Dr. Chourbaji holds a habilitation in experimental psychiatry and behavioral biology, reflecting her extensive expertise in the field. Her research focuses on the behavioral and physiological mechanisms underlying stress and psychiatric disorders, with a particular interest in animal models. She is recognized for her expertise in animal welfare, behavioral biology, and research management. Sabine Chourbaji actively contributes to interdisciplinary communication and education, leading seminars and workshops that bridge biology and related fields.

