OFFICE OF THE OMBUDSPERSON FOR
**ACADEMIC ETHICS
AND PROCEDURES**
OF THE REPUBLIC OF LITHUANIA

GUIDELINES FOR SCIENCE COMMUNICATION, in Line with Academic Ethics

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METHODOLOGICAL NOTES

- The initial version of the document prepared by the representatives of the Office was shared with the members of the working group "Guidelines for Science Communication in Line with Academic Ethics" (hereinafter referred to as the "Guidelines"), requesting for their comments. After receiving feedback, the text was revised: the document was shortened, its structure was changed, information was clarified and supplemented, and statements were reworded in line with the received suggestions.
- An artificial intelligence-based language model ChatGPT (version GPT-4), developed by OpenAI was used in the preparation of this document. This tool was used in clearly defined supporting stages of the work: generating ideas, selecting sources, translating foreign-language texts into Lithuanian, and styling.

DEFINITIONS

ACADEMIC COMMUNITY. According to Article 60 of the Republic of Lithuania Law on Higher Education and Research, the academic community consists of students, lecturers, researchers, professors emeritus, scientists emeritus, and other employees directly involved in science and/or studies.

ARTIFICIAL INTELLIGENCE. Technologies programmed to analyse the surrounding world and take action to achieve specific goals (Artificial Intelligence, 2025).

GDPR (GENERAL DATA PROTECTION REGULATION). Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC. The Regulation entered into force on 25 May 2018 and sets out legal requirements for how personal data of natural persons must be collected, used, stored and processed in the European Union in order to ensure their privacy and fundamental rights (European Union, 2016).

GUIDELINES. Guidelines for Science Communication in Line with Academic Ethics.

SCIENTIFIC WORK. Based on Order No. V-1593 of the Minister of Education, Science and Sport of the Republic of Lithuania of 2 September 2021 "On the Implementation of Paragraphs 2.2–2.6 of Resolution No 149 of the Government of the Republic of Lithuania of 2 March 2017 "On the Implementation of the Republic of Lithuania Law on Higher Education and Research", the result of the dissemination of scientific research is considered to be scientific work. According to the above order, scientific works include such types of scientific research dissemination units as scientific monographs, parts of scientific monographs, scientific studies, synthetic scientific works or their parts, etc. Some scientific works, such as doctoral dissertations, are not listed as scientific works, but the Lithuanian Academic Electronic Library's classification of types of scientific publications states that "a dissertation is a scientific work submitted to obtain a scientific degree," which corresponds to the above definition of a scientific work.

HIGHER EDUCATION AND RESEARCH INSTITUTION. According to Article 4(14) of the Republic of Lithuania Law on Higher Education and Research, a higher education and research institution is defined as "a legal person registered in the Republic of Lithuania the main activity of which is carrying-out of studies and activities related to studies, and/or research and experimental (social, cultural) development". This definition covers universities, colleges and research institutes.

SCIENCE (SCIENTIFIC) COMMUNICATION. The accumulation and dissemination of information about scientific research results using technical equipment, organisational structures and other means, the translation of research results into practical knowledge (Universal Lithuanian Encyclopaedia, 2025).

STUDY WORK. Although the concept of study work is not defined in the legislation of the Republic of Lithuania, study work is considered to be works necessary for the implementation of the objectives of a higher education study programme, such as written works on a study subject, projects, coursework and final (bachelor's and master's) theses.

OFFICE. The Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania is an independent institution that supervises academic ethics and procedures and strengthens trust in the science and study system in Lithuania (Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania, 2025).

SUMMARY

1

Before disseminating scientific information, it is advisable to carry out self-reflection, i.e. clearly define the target audience, the purpose of communication, structure and clarity of language. Ethically based communication requires conscious choices: avoiding technical jargon, correctly presenting complex information, disclosing the contribution of artificial intelligence, and ensuring that the message is understandable, responsible, and transparent. Key questions for self-reflection are presented in the form of a checklist (p. 5).

2

Ethical communication is an integral part of scientific integrity and the social responsibility of scientists. By providing specific recommendations, the Guidelines are aimed at assisting the academic community (in particular scientists, researchers and academic institutions), as well as representatives of citizen science, in communicating their research and scientific results to the academic community, policymakers, journalists and the public with integrity and responsibility.

3

Effective and academically ethical communication are not identical concepts, but they are closely related. Effective and ethical communication alone is not enough to ensure science communication. Six core values must be upheld: honesty, trust, fairness, respect, responsibility and courage.

4

Two types of legislation can be particularly useful in communicating science, i.e. mandatory (regulations of the European Union, laws, etc.) and recommendatory (guidelines, recommendations, etc.) documents, in which each target group is invited to apply as needed (e.g., using artificial intelligence, organising scientific events in accordance with the relevant guidelines).

5

The information provided must be tailored to the audience. It is important for scientists to provide in-depth, methodologically accurate content with appropriate terminology and clearly indicated sources. Journalists are provided with structured, clear and reliable information based on reliable sources that is easy to use. It is important for policymakers to communicate in a contextually sensitive manner, presenting facts and alternatives impartially, avoiding conflicts of interest and promoting cooperation in the public interest. When communicating with the public, clear and relevant content is presented in the form of a narrative, linking science with everyday life.

6

When disseminating scientific information on social networks, reliable sources must be used and confidentiality and privacy must be ensured, communicating in a respectful and professional manner to create a constructive dialogue. Visual aids are used, text is combined with sound or interactivity to engage the audience, and visualisations are presented clearly and ethically. When presenting open data, it is necessary to adhere to the principles of open access, privacy and data protection, and when using artificial intelligence tools to create visualisations, their transparency must be ensured.

7

Technological innovations, especially artificial intelligence, which is becoming an increasingly important tool in communication, have a significant impact on scientific communication, while also posing new challenges related to transparency, authenticity of information, ethics and the risk of disinformation. Misinformation must be addressed appropriately, and the public's resilience to disinformation must be strengthened preventively. Cross-sectoral cooperation is promoted through active engagement in the public sphere.

8

Trust in science can be strengthened through feedback, using structured forms of feedback (e.g. surveys, evaluation questionnaires, interviews or focus groups). It is also important to obtain informal feedback (e.g. comments, questions or remarks during conversations, feedback on social networks, etc.). Feedback can become a consistent tool for improvement when the comments received are taken into account.

GUIDE

TO CHECK WHETHER YOU ARE COMMUNICATING EFFECTIVELY, USE TOOLS SUCH AS THIS CHECKLIST.

IN THE CASE OF GOOD COMMUNICATION, YOUR ANSWERS SHOULD BE "YES".

THE ANSWERS TO THE QUESTIONS IN THIS CHECKLIST SHOULD BE "YES".

EFFECTIVE COMMUNICATION AND AUDIENCE UNDERSTANDING

1. Have I taken training and recommendations on the skills necessary to improve my communication when preparing?
2. Have I contacted the public relations specialist of my institution regarding the preparation of the information to be disseminated?
3. Do I know who I am talking to, i.e. have I clearly defined my audience?
4. Do I adapt the content and style of my communication to different communication channels (including social media)?
5. Have I clearly defined my communication goals (e.g. to inform, persuade, build trust)?
6. Have I found out and taken into account what the audience requested in advance, or have we discussed expectations before the meeting?
7. Am I prepared to briefly explain the essence of my research or studies?
8. Do I use reliable sources and cite them appropriately?
9. Have I provided my contact data to journals if they need to verify information (e.g., telephone number, e-mail address)?

CONTENT QUALITY AND CLARITY

1. Have I disclosed the current status of the scientific research (study work), explaining the main conclusions, justifying the relevance of the topic?
2. Have I started with the most important information and then explain the details?
3. Have I maintained methodological rigour, explaining the research design, limitations, and data used (including open data)?
4. Have I avoided technical jargon and explain all specific terms?
5. Have I provided examples, analogies or stories to make myself more relatable to the listener?
6. Have I used visual aids (diagrams, graphs, photos, video material) appropriately to explain (complex) topics?
7. Are my visual aids clear, ethical and helpful in conveying the main message?

RESPONSIBILITY AND ETHICS

1. Have I disclosed financial sources, amount, duration, additional conditions related to financing?
2. Do I communicate about costs and who covers them?
3. Have I cited the sources of information or sent it to the head of the public relations division?
4. Have I indicated the sources so that they are as accessible as possible and so that it is possible to contact them directly and submit enquiries (this may be relevant for journalists)?

5 Have I justified how my scientific or academic work contributes to solving more relevant or broader problems?

6 Have I disclosed the research partners and their roles?

7 Have I specified the roles and competencies of investigators and persons communicating about the investigation?

8 Have I declared any potential conflicts of interest when disclosing information?

9 Do I properly acknowledge others who have contributed to the work and honestly racknowledge their contribution?

10 Do I use artificial intelligence tools responsibly and check that the information is reliable?

11 Do I clearly indicate if any part of the content has been created using artificial intelligence?

12 Do I avoid using artificial intelligence tools when creating sensitive or risky information?

13 Have I researched and am I following the guidelines that comply with the current artificial intelligence policy of the institution, publisher or journal?

14 Do I comply with applicable legislation (section 1.3) when communicating?

15 Have I checked and do I follow the applicable guidelines or recommendations (section 1.3) before communicating?

16 Do I ensure the protection of personal data in accordance with the requirements of the GDPR when communicating?

17 Have I discussed the possible ways of applying the results of the investigation, their impact and consequences (possible risks)?

18 Does the information I disseminate comply with the principles of academic ethics (integrity, trust, fairness, responsibility, courage) of the International Centre for Academic Integrity (ICAI)?

1. INTRODUCTION

1.1. The social importance of scientific communication that is in line with academic ethics

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) emphasises that science communication is an integral part of scientific integrity and the social responsibility of scientists, and calls for the creation of a scientific ecosystem based on justice, inclusion and human rights, "promote trust and a culture of science in society" (UNESCO, 2017). One of the largest research and researcher associations, Science Europe emphasises the need to strengthen the role of research institutions in communication, combat misinformation, provide training for scientists on science communication, and promote various forms of knowledge dissemination (Science Europe, 2022). The research conducted at the global and European levels also shows that science and science communication play an important role and have a significant impact on societal change.

A study published in Nature Human Behaviour in 2025, as well as Eurobarometer (European Commission, 2025) reveal that although most Europeans value science and technology, there is a need to raise public awareness and encourage greater involvement in science-related issues.

In April–May 2025, the Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania (hereinafter referred to as the "Office") formed a working group to provide comments and suggestions on the guidelines being developed.

GUIDELINES are defined as a document covering the main principles and practices of ethical scientific communication.

PURPOSE OF THE GUIDELINES is to formulate recommendations that can be used as a guide for academically ethical science communication.

IMPORTANCE OF THE GUIDELINES is science communication based on ethical principles is essential for ensuring greater public trust in science, research transparency and academic integrity (Resnik and Elliott, 2016; Mejlgaard et al., 2020).

GUIDELINES ARE ISSUED:

- for the academic community, so that its members can communicate responsibly and ethically with each other, with policymakers and the media, and the general public;
- for scientific and academic institutions, so that they have the means to develop scientific communication competences and promote the ethical and transparent dissemination of results;
- representatives of citizen science, so that they can disseminate information about the creation of scientific knowledge in citizen science in a targeted, responsible and inclusive manner.

It is important to note that when communicating not only about scientific work but also about study work, it is recommended to apply the same recommendations provided in these Guidelines, because in most cases, the stages necessary for preparing scientific information are used to create study work, such as: review of reliable scientific sources, methodological part, obtaining and summarising results, etc. Citizen scientists are also encouraged to communicate in a similar way when research is conducted or scientific information is created outside an academic context or without collaboration with professional researchers (e.g. in the case of extreme citizen science).

1.2. Effective and ethical communication of science

Science communication involves the transfer of information and active dialogue between scientists, the media, politicians and the public, with the aim of improving the relationship between science and society and promoting critical thinking (Burns, O'Connor & Stocklmayer, 2003).

Effective communication alone is not enough to ensure scientific communication. It must also comply with the fundamental principles of academic integrity. In their 2019 book "An Ethics of Science Communication", Fabien Medvecky and Joana Leach present a system of ethics for science communication based on adherence to principles and *relationship ethics* (Medvecky & Leach, 2019). The authors identify four basic ethical principles: *usefulness, accuracy, the right moment, generosity* (Medvecky & Leach, 2019). *Ethical communication* is primarily based on values and encourages adherence to *the principles of truth, accuracy, respect, transparency and responsibility*. Such communication is based on goodwill and a responsible approach to what we communicate, how we communicate it and to whom (Froehlich et al., 2021).

The Organisation for Economic Co-operation and Development (OECD) 2023 report *"Communicating Science Responsibly"* sets out six key principles for effective, reliable and responsible science communication (Organisation for Economic Co-operation and Development, OECD, 2023):

- TRANSPARENCY
- INCLUSION
- FREEDOM AND AUTONOMY
- RESPONSIBILITY
- INTEGRITY
- TIMELY INFORMATION

When discussing values that are consistent with academic ethics, it is important to mention the principles of academic ethics that should form the basis of academically ethical scientific communication.

The International Centre for Academic Integrity (ICAI) defines academic integrity as a commitment to uphold six core values even in the face of adversity: *integrity, trust, fairness, respect, responsibility,* and *courage* (ICAI, n.d.).

1.3. Consideration of the legal aspects

When communicating about science to the target groups mentioned in the Guidelines, two types of legal acts should be used as the basis: mandatory (regulations of the European Union, laws, etc.) and recommendatory (guidelines, recommendations, etc.) documents.

MANDATORY LEGISLATION

1. **United Nations Convention on the Rights of Persons with Disabilities and Optional Protocol**
   United Nations (13 December 2006). Convention on the Rights of Persons with Disabilities and Optional Protocol. UN Treaty Collection. Available online: enable convention cover.

2. **General Data Protection Regulation (GDPR, EU 2016/679).**
   European Parliament and Council (27 April 2016). *Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data.* EUR-Lex. Available online: https://eur-lex.europa.eu/eli/reg/2016/679/oj en.wikipedia.org.

3. **Republic of Lithuania Law on Legal Protection of Personal Data.**
   Seimas of the Republic of Lithuania. Available online: Republic of Lithuania Law on Legal Protection of Personal Data.

4. **Republic of Lithuania Law on the Provision of Information to the Public.**
   Seimas of the Republic of Lithuania. Available online: I-1418 Republic of Lithuania Law on the Provision of Information to the Public.

5. **Republic of Lithuania Law on Copyright and Related Rights.**
   Seimas of the Republic of Lithuania. Available online: VIII-1185 Republic of Lithuania Law on Copyright and Related Rights.

6. **Republic of Lithuania Law on the Right of Access to Information and the Re-use of Data**
   Seimas of the Republic of Lithuania. Available online: VIII-1524 Republic of Lithuania Law on the Right of Access to Information and the Re-use of Data.

7. **Republic of Lithuania Law on Equal Opportunities.**
   Seimas of the Republic of Lithuania. Available online: IX-1826 Republic of Lithuania Law on Equal Opportunities.

8. **Republic of Lithuania Law on Information Society Services.**
   Seimas of the Republic of Lithuania. Available online: X-614 Republic of Lithuania Law on Information Society Services.

9. **Republic of Lithuania Law on Higher Education and Research.**
   Seimas of the Republic of Lithuania. Available online: XI-242 Republic of Lithuania Law on Higher Education and Research.

10. **Republic of Lithuania Law on Cyber Security.**
    Seimas of the Republic of Lithuania. Available online: XII-1428 Republic of Lithuania Law on Cyber Security.

RECOMMENDATORY LEGISLATION

1. **UNESCO Recommendation on Science and Scientific Researchers.**
UNESCO (13 November 2017). *Recommendation on Science and Scientific Researchers.* UNESCO. Available online: Recommendation on Science and Scientific Researchers - UNESCO Digital Library.

2. **Code of Ethics in Providing Information to the Public**
Association of Ethics in Public Information (1996). Code of Ethics in Providing Information to the Public. Available online: CODE OF ETHICS IN PROVIDING INFORMATION TO THE PUBLIC.

3. **Guidelines for Publication Ethics of the Conference of Rectors of Lithuanian Universities.**
Conference of Rectors of Lithuanian Universities. (2019). *Guidelines for Publication Ethics (PDF).* Available online: Guidelines for Publication Ethics – Conference of Rectors of Lithuanian Universities.

4. **Ensuring Academic Ethics in Organising Distance Studies. Guidelines [PDF].**
Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania (2020). Available https://etikostarnyba.lt/wp-content/uploads/2020/12/Gaires_Akademines-etikos-uztikrinimas-organizuojant-studijas-nuotoliniu-budu.pdf.

5. **Guidelines for the Ehical Use of Artificial Intelligence in Higher Education and Research Process**
Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania (April 2021) 29). *Guidelines for the Ethical Use of Artificial Intelligence in Higher Education and Research Process* (Order No. V-14). Register of Legal Acts. Available online: V14 On the approval of guidelines for the ethical use of artificial intelligence in science and studies.

6. **Guidelines for the Assessment of Compliance with Research Ethics.**
Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania (June 2022). *Guidelines for the Assessment of Compliance with Research Ethics* (Order No. V-16). Available online: V-60 On the approval of guidelines for assessing compliance with research ethics.

7. **Ensuring Academic Ethics and Equal Opportunities at Scientific Events. Guide.**
Office of the Ombudsperson for Academic Ethics and Procedures of the Republic of Lithuania (2022). *Guide for Organisers of Scientific Events.* Available online: Akademinės-etikos-ir-lygių-galimybių-užtikrinimas-mokslo-renginiuose.pdf.

It should be noted that a failure to comply with mandatory legislation entails legal liability, while a failure to comply with recommended legislation may have indirect consequences, such as a poor reputation and mistrust, which may result in financial losses (loss of funding for a scientific project), etc.

2. COMMUNICATION TOOLS AND CHANNELS

Ethical science communication begins with clearly identifying the target audience, understanding its specific needs, and being able to respond to them appropriately. When communicating on behalf of an institution, it is particularly important to collaborate with communication specialists and adhere to the principles of confidentiality and data protection.

2.1. Tips on how to behave when representing an institution

When communicating on behalf of an institution, it is particularly important to provide clear, accurate and data-driven information, avoid emotional or unfounded statements, and maintain professionalism and efficiency in crisis situations (Rubinelli, 2023). Transparency strengthens trust in the institution and reduces reputational risk (ICAI, n.d.; Resnik & Elliott, 2016). When preparing scientific information on behalf of an institution, it is particularly important:

TO COOPERATE WITH COMMUNICATION SPECIALISTS, FOLLOW THE COMMUNICATION PLAN AND MAINTAIN CONSISTENCY ACROSS ALL PLATFORMS

- To collaborate with communication specialists when planning institutional messages (Illingworth & Allen, 2020), adhere to the institution's communication plan, and collaborate with responsible persons (Rubinelli, 2023).
- To coordinate the institution' public messages across different channels. To avoid contradictory messages or different positions. Consistency helps to create a clear and reliable image (OECD, 2023; Wissenschaft im Dialog, 2025).
- To use available resources, find out about available training on science communication at your institution.

TO OBSERVE THE PRINCIPLES OF CONFIDENTIALITY AND DATA PROTECTION

- Not to disclose internal, unpublished information without the institution's permission.
- To respect personal data protection and comply with legal regulations. Data processing is a part of ethical communication (OECD, 2023; Wissenschaft im Dialog, 2025).

TO CLEARLY STATE ON WHOSE BEHALF THE COMMUNICATION IS BEING MADE (INSTITUTION OR INDIVIDUAL)

- To indicate whether communication is carried out on behalf of an institution or as an individual, i.e. clearly distinguish between your own opinions and those of others, as well as scientific facts. To maintain professionalism even in your personal space, if the account is linked to the institution (OECD, 2023; Wissensch im Dialog, 2025).
- To respond respectfully, do not escalate disputes, not to spread unverified information. The representative of the institution remains visible even beyond the boundaries of official communication (Vraga & Bode, 2020).

2.2. Adapting communication to different audiences

It is important to continuously improve communication skills: participate in training, take an interest in trends in science communication. When communicating, it is necessary to take into account and adapt messages and information channels to different target groups. Based on the international guidelines (UNESCO, 2021; *Science Europe*, 2022; OECD, 2023), the most important groups for responsible science communication are: scientists, journalists, politicians and decision-makers, and the general public. Each of these groups has different expectations in terms of information, levels of understanding and communication objectives, so science communication must not only be ethical in content, but also appropriately tailored to the specific audience in terms of form and channel.

2.2.1. Academic community

When planning research, preparing scientific publications, presentations at conferences of scientific and academic institutions, conducting seminars in person or online, and organising events for the academic community, it is important to be methodologically accurate, to create dialogue, to systematically educate young colleagues (current or future disseminators of scientific knowledge), and to comply with regulations and recommendations. Therefore, it is important:

TO TAKE INTO ACCOUNT THE DIVERSITY OF THE AUDIENCE (E.G. RESEARCHERS, STUDENTS, EMPLOYEES, TEACHERS OF VARIOUS DISCIPLINES)

- To take into account the diversity of the academic community audience in terms of discipline, level of experience and information needs to ensure that communication is contextually appropriate and engaging (Byars-Winston et al., 2015).

TO COMMUNICATE WITH METHODOLOGICAL ACCURACY

- To maintain methodological accuracy by explaining the research plan, methodological limitations, discussing open and primary data, graphical representation methods, and indicating the forms of use of artificial intelligence. To rely on reliable data, clearly indicated sources, and adhere to academic citation standards (Baker & Lattuca, 2010; OECD, 2023).
- It is important to explain whether the research is still ongoing, revealing and justifying the uniqueness and relevance of the topic, and presenting the main conclusions, expectations and objectives of the research. To discuss possible ways of applying the research results, their impact and consequences (possible risks).

TO CREATE A CULTURE OF DIALOGUE BY GIVING THE AUDIENCE THE OPPORTUNITY TO ASK QUESTIONS, PARTICIPATE IN DISCUSSIONS, CRITICALLY EVALUATE AND EXPRESS THEIR OPINIONS.

- To encourage two-way communication, create opportunities to ask questions, participate in discussions and develop critical thinking, rather than just passively receiving information (Byars-Winston et al., 2015).
- To create an open and non-punitive academic culture in which representatives of the academic community could confidently express their opinions, question existing narratives, and learn from mistakes (Feliú-Mójer, 2022).

TO SYSTEMATICALLY EDUCATING STUDENTS AND EARLY CAREER RESEARCHERS

- To support students and early-career researchers by offering skills development opportunities covering project preparation, public speaking, interdisciplinary collaboration and communication with society (Baker& Lattuca, 2010).
- To implement effective mentoring programmes that help reduce uncertainty, increase self-confidence and encourage communicative courage (Byars-Winston et al., 2015; Pfundet al., 2016).
- To institutionally establish ongoing science communication training, covering topics such as crisis communication, visualisation, social media and media relations, not as one-off courses, but as part of a long-term career (Brownell et al., 2013).

TO PUBLISH ETHICALLY

- Publications in scientific journals should comply with the Guidelines for Publication Ethics of the Conference of Rectors of Lithuanian Universities (see section 1.3 "Recommendatory Legislation").

TO COMMUNICATE ABOUT THE COMPLIANCE OF RESEARCH WITH THE ETHICAL REQUIREMENTS OF SCIENTIFIC RESEARCH

- If necessary, to request an assessment of the compliance of research with the provisions of research ethics. To familiarise with the Guidelines for the Assessment of Compliance with Research Ethics (see Section 1.3 "Recommendatory Legislation").

TO ORGANISE SCIENTIFIC EVENTS IN A RESPONSIBLE MANNER

- When organising scientific events, to take into account the recommendations for their organisation and implementation, which discuss the criteria for selecting participants (works) for scientific events, recommendations for submitting relevant information, basic personal data protection requirements and other information relevant to organisers (see section 1.3 "Recommendatory Legislation").

TO PROMOTE ACADEMIC ETHICS IN THE ORGANISATION OF DISTANCE STUDIES

- When organising distance studies, to promote compliance with the principles of academic ethics based on the Guidelines for the Ensuring Academic Ethics in Organising Distance Studies (see section 1.3 "Recommendatory Legislation").

TO FOLLOW THE RELEVANT GUIDELINES

- For example, the Code of Ethics for Information of the Public, UNESCO Recommendations for Scientific Institutions and Researchers, etc. (see section 1.3 "Recommendatory Legislation").

TO COMPLY WITH LEGISLATION

- To ensure that the dissemination of scientific information does not violate the provisions of mandatory legislation (see section 1.3 "Mandatory legislation").

2.2.2. Journalists

It is important to promote consistent and respectful cooperation between the academic community and the media, with scientists helping to explain complex issues and journalists reaching out to the general public (JCOM, 2021; OECD, 2023). When communicating with journalists, it is advisable to use clearly structured summaries, visual material and expert commentary to make it easier to convey information to different target groups (Academy of Medical Sciences, 2020; OECD, 2023). The German science communication organisation *Wissenschaft im* Dialog (*Wissenschaft im Dialog*, a non-profit non-governmental organisation) and the Federal Association of Higher Education Communication (Bundesverband Hochschulkommunikation, a non-profit non-governmental organisation) (2024/2025) have presented a checklist that discusses the key aspects to consider when communicating about science. The questions are designed to help prepare any type of research communication (e.g. press releases, online articles, social media posts, etc.).

TO INDICATE THE STATUS OF THE RESEARCH, ITS RELEVANCE, MAIN CONCLUSIONS, AND PRESENT THE INFORMATION IN A METHODOLOGICALLY ACCURATE AND VISUALLY APPEALING MANNER

- It is important to explain whether the research is still ongoing, revealing and justifying the uniqueness and relevance of the topic, presenting the main conclusions, expectations and objectives of the research related to communication of scientific information. Discuss possible ways of applying the research results, their impact and consequences (possible risks).
- To maintain methodological accuracy by explaining the research plan, methodological limitations, discussing open and primary data, and methods of graphical representation. To visualise the topic by properly using photos, diagrams and other visual material.
- To indicate forms of artificial intelligence use.

TO PROVIDE CONTACT INFORMATION FOR RESEARCHERS

- Ao disclose the roles and competencies of researchers and communication representatives, and to provide contact information for journalists (including the researchers' website, telephone number, e-mail, etc.). To indicate the source of the publication, if possible, provide a link to download it, or forward the publication to the head of the public relations division.

TO DISCLOSE FINANCIAL INFORMATION RELATED TO THE RESEARCH AND POSSIBLE CONFLICTS OF INTEREST

- To disclose the sources of funding, the amount, the duration, and any additional conditions related to the funding, such as expenses and who covers them.
- To indicate research partners and potential conflicts of interest.

Additional advice on communicating with the media is provided by the American Association for the *Advancement of Science* (*Tips for Scientists Communicating With the Press | American Association for the Advancement of Science,* AAAS; n. d.).

TO EXPLAIN IN A SIMPLE AND STRUCTURED WAY, PERSONALISE

- To try to explain in two or three sentences what has been done and why it is important. To describe what personal experience prompted you to pursue a career in science. Such details are interesting to both writers and readers.

- To assume that the journalist will not be familiar with the research or fields being presented. To consider how you can explain your research or latest discovery to someone from a completely different area, such as fellow passengers.

TO CHOOSE THE RIGHT VISUALISATION

- An analogy or image can help to present information appropriately. To consider using artwork and videos. A good visualisation or video will draw attention to the topic in a newspaper or magazine, and will be viewed on social media sites.

TO SPEED UP COMMUNICATION, BE OPEN TO ACTIVITIES OF VARIOUS SCOPE AND DIFFERENT DIRECTIONS, CORRECT POSSIBLE MISTAKES

- Not to be overly concerned about changes in the scope and format of the report. Journalists may be limited not only by time and space, but also by location: describe what you have presented in five-page article, they may only devote a few hundred words to you. Journalists may interview your competitors or other colleagues in the field who will present a different point of view.
- To respond as quickly as possible and behave correctly, and if journalists make a mistake, correct the information. Journalists usually work at a much faster pace than representatives of other fields.

TO FOLLOW THE GUIDELINES

- For example, on issues of authorship, comply with the publication ethics guidelines of the Conference of Rectors of Lithuanian Universities, the Code of Ethics for Public Information, etc. (see section 1.3 "Recommendatory legislation").

TO COMPLY WITH LEGISLATION

- To ensure that the dissemination of scientific information does not violate mandatory legal provisions (see section 1.3 "Mandatory legislation").

2.2.3. Policy makers

When disseminating scientific information to policymakers, it is important to be aware of their responsibilities, priorities, and experience. It is also important to consider how to capture the attention of busy policymakers (Suhay, Cloyd, Heath & Nash, 2019). Therefore, it is recommended to:

TO CHOOSE THE APPROPRIATE FORM AND TIME OF COMMUNICATION

- To find out about the work schedule of policymakers and/or the timing of key legislative decisions (if relevant to the topic being communicated).
- To consider whether it is more appropriate to choose written communication and how much time to devote to it, or to meet with policymakers in person.

TO USE VARIOUS RESOURCES: TRAINING, SOCIAL NETWORKS

- To collaborate with colleagues or organisations that have experience in communicating with policymakers.
- To practise and ask for feedback. To try to simulate a meeting and ask colleagues for feedback or review (written) material.

TO IDENTIFY THE OBJECTIVES AND ENCOURAGE COOPERATION FOR THE PUBLIC GOOD

- To clearly state your communication objectives, explain why policymakers should care about the information being presented, and emphasise the common goals.
- To present information impartially, avoiding lobbying and separating scientific facts from political positions, and without interfering in political decisions (UNESCO, 2021). Promote cooperation in the public interest.

TO DISCLOSE YOUR COMPETENCE AND POSSIBLE CONFLICTS OF INTEREST, LIMITATIONS, CONSEQUENCES

- For the sake of credibility, to disclose your competence in the field in question. To communicate ethically, accurately presenting the range of reliable works on the topic presented. To assess your bias or possible conflicts of interest and declare them.
- To identify uncertainties and possible consequences: clarity on this issue helps policymakers to make responsible decisions (Pielke, 2007; UNESCO, 2021).

TO PRESENT INFORMATION IN A CLEAR, CONCISE AND STRUCTURED MANNER

- To be understandable, communicate concisely, objectively, in a structured manner, without jargon, using specific examples, stories and appropriate visual aids. Base information on data and scenarios, avoiding excessive academic discussions and focusing on practical aspects (UNESCO, 2021).

TO CONSIDER SOCIAL ASPECTS

- To build trust by engaging with organisations or individuals who are known and respected by policymakers. To consider which geographical, thematic or social aspects can be used to strength relations with the policymakers.
- To communicate respectfully, recognising that policymakers often have expert knowledge and seek to serve the community. To be prepared to listen to their opinions and exchange ideas (Suhay, Cloyd, Heath & Nash, 2019).

TO CONSIDER THE (POLITICAL) CONTEXT

- To remember that science is only one of the areas of influence in politics, i.e. policymakers make decisions based on a variety of sources, not just science.
- To respond constructively to political diversity by seeking opportunities to engage even with those policymakers who disagree with you; consider how to address a politically diverse audience and how to resolve disagreements that arise (Suhay, Cloyd, Heath & Nash, 2019).

TO FOLLOW THE RELEVANT GUIDELINES

- For example, on issues of authorship, to comply with the Guidelines for Publication Ethics of the Conference of Rectors of Lithuanian Universities, the Code of Ethics for Public Information, etc. (see section 1.3 "Recommendatory legislation").

TO COMPLY WITH LEGISLATION

- To ensure that the dissemination of scientific information does not violate the provisions of mandatory legislation (see section 1.3 "Mandatory legislation").

2.2.4. Society

When disseminating scientific information to the public, it is important to present data related to everyday life, such as health, climate change or technology, in order to increase public engagement (Besley, 2020). Stories and metaphors can be used to strengthen the emotional connection with the audience and explain complex processes (Dahlstrom, 2014; WHO, 2022). Therefore, it is advisable:

TO COMMUNICATE CLEARLY AND CONVINCINGLY

- To present information clearly, without jargon, using language that is easily understood by the general public (WHO, 2022). To practise communicating with non-experts.
- To identify the main points you want to convey and focus on them. Use short sentences.

TO HIGHLIGHT THE KEY POINTS

- To structure your message in such a way that it arouses curiosity and is based on reliable data and facts. To tell stories and link relevant facts to events.
- To consider how to engage in dialogue and communicate with the audience. To plan strategies on how to deal with scepticism or mistrust.

TO COMMUNICATE INCLUSIVELY, PROACTIVELY, TRANSPARENTLY, ENCOURAGE CRITICAL THINKING

- To communicate transparently and openly, build trust, answer questions from the audience and dispel doubts (Besley, 2020).
- To encourage dialogue and critical thinking so that the audience feels they are an active part of the communication process (Brossard & Scheufele, 2013).

TO FOLLOW THE RELEVANT GUIDELINES

- For example, on issues of authorship, to comply with the Code of Ethics in Providing Information to the Public, etc. (see section 1.3 "Recommendatory legislation").

TO COMPLY WITH LEGISLATION

- To ensure that the dissemination of information does not violate the provisions of mandatory legislation (see section 1.3 "Mandatory legislation").

2.3. Choosing the right communication channel

The choice of channels must be strategically based on the audience's information consumption habits, technological literacy, trust in sources, and the complexity of the thematic content (Trench, 2017; Schäfer et al., 2021). It is important to use social networks in a balanced way.

TO STRATEGICALLY SELECT AND COMBINE CHANNELS

- The channel for disseminating knowledge is selected based on the audience's information consumption habits, technological literacy, sources of trust, and the complexity of the topic (Trench, 2017; Schäfer et al., 2021).

- To combine channels according to the nature of the topic (Bucchi & Trench, 2021). To disseminate information on rapidly changing topics through digital channels, and complex topics through traditional methods or during events (Bucchi & Trench, 2021).

TRADITIONAL METHODS ARE MORE SUITABLE FOR REACHING PEOPLE WHO ARE LESS DIGITALLY ACTIVE

- Traditional channels (e.g. print media, television, radio, public events) are more suitable for reaching older or less digitally active target groups and building trust with them (Bultitude, 2011).

TO USE DIGITAL CHANNELS FOR GREATER SPEED AND INTERACTIVITY

- To use digital channels (e.g. social networks, blogs, webcasts) when you need to reach your audience quickly, interactively and in a personalised way (OECD, 2023).
- Digital channels enable the use of visualisations, narratives and real-time feedback, which strengthens engagement and helps to refine strategy (Schäfer et al., 2021; Schaefer et al., 2021).

2.4. Ethical science communication on social media

Social media can help inform and create ethical dialogue. Such mutual communication must be honest, open, transparent, consistent, accessible and understandable (OECD, 2023). Social media can be used not only as platforms for disseminating information, but also for responding and creating an engaging narrative about research and its impact on society (Sugimoto et al., 2017; Fleerackers et al., 2022). Therefore, it is important:

TO USE SOCIAL MEDIA IN ACCORDANCE WITH YOUR INSTITUTION'S SOCIAL MEDIA GUIDELINES

- In all cases, it is important to comply with your institution's social media guidelines. To familiarise yourself with and follow the provisions of these guidelines, and protect not only your personal reputation but also the reputation of your institution (ASLO, 2023).
- To utilise social networks (e.g., X, LinkedIn, Instagram, TikTok, YouTube) as channels for direct communication with various target groups (Sugimoto et al., 2017; Fleerackers et al., 2022).

TO USE RELIABLE SOURCES, DISTINGUISH BETWEEN OPINIONS AND SCIENTIFIC FACTS, COMMUNICATE RESULTS ACCURATELY

- To present research information (results and conclusions) in a way that does not distort the essence of the research.
- Whenever sharing scientific information, it is necessary to include a clear reference to the original source and check whether it is a peer-reviewed study.
- To separately identify your (others') opinions and scientific facts. To clearly draw the line between opinion and science to avoid misleading the audience (Vraga & Bode, 2020; WHO, 2022).

TO ENSURE CONFIDENTIALITY AND PRIVACY

- Not to disclose confidential or unpublished information. To respect the confidentiality requirements of colleagues, participants and publishers, especially if the data has been obtained on the basis of cooperation (Resnik, 2020).

- To respect the privacy of participants, collaborators, and third parties. Not to disclose personal information without written consent, and avoid sharing findings until they have been reviewed (Resnik & Elliott, 2016).

TO COMMUNICATE RESPECTFULLY AND PROFESSIONALLY

- To participate in discussions respectfully and constructively. To respond to criticism professionally, providing clear arguments and avoiding personal attacks (Besley et al., 2021).
- Not to react emotionally to bullying, if necessary (in the case of unethical communication), to use blocking or muting functions.

2.5. Visual aids and their role

The use of visual aids (infographics, diagrams, animations) helps to convey complex information in a simpler and more memorable way, thereby reducing cognitive load and maintaining the audience's attention (Mayer, 2009; Dahlstrom, 2014). Therefore, it is recommended to:

TO CREATE VISUAL STORIES THAT ENGAGE YOUR AUDIENCE

- To create visualisations that tell a story, especially when communicating on social media or in the media, where it is important to attract and maintain attention (Hullman & Diakopoulos, 2011; Krause et al., 2021).
- To develop visual literacy by creating and interpreting graphs, choosing appropriate communication tools, taking into account the needs of the audience (Zikmund-Fisher, 2013).
- To combine visualisations with text, audio or interactivity to ensure accessibility for different groups, including people with disabilities (WHO, 2022).

TO PRESENT VISUAL MATERIAL CLEARLY AND ETHICALLY

- To follow principles of visual clarity by using clearly labelled axes, understandable labels, a consistent colour system, and additional explanations, especially when information is provided not to experts (Kostelnick, 2016; Caviglia et al., 2021).
- To avoid manipulative visualisations, such as distorted scales or selective data, rely on transparency, explain methods, cite sources, and disclose limitations (Zikmund-(Fishe)r, 2013; Krauseet al., 2021; WHO, 2022).
- To use metaphors and symbols responsibly so that they help convey the essence and, at the same time, distort the content of the information or create misinterpretations (Hegarty, 2017).

IF POLICY ALLOWS, TO USE ARTIFICIAL INTELLIGENCE SOLUTIONS TO CREATE VISUALISATIONS AND ADHERE TO DATA ETHICS

- If the policy of the institution, publisher or journal allows it, use artificial intelligence solutions to create visualisations, image content and interactive tools, and clearly indicate what corresponds to the use of the artificial intelligence tool (Loos et al., 2020;) Van Dijck et. al., 2021).
- When visualising open data, to adhere to open access, privacy and data protection principles, cite sources, use anonymisation and security measures, and ensure that the data is not used for commercial purposes, protection principles, cite sources, use anonymisation and security measures, avoid ethical or legal violations (European Data Protection Board, 2021; European Commission, 2023). Also, to comply with the Republic of Lithuania Law on the Right of Access to Information and the Re-use of Data.

3. OPPORTUNITIES FOR IMPROVING COMMUNICATION

In order to improve communication by adapting artificial intelligence, it is necessary to follow the applicable policies established by your institution, which should not be in conflict with European Union and national regulations. In this context, it is important to recognise possible manifestations of disinformation and prevent them. Formal and informal feedback can become a tool for improvement, strengthening trust in scientific information.

3.1. Recommendations for the use of artificial intelligence in science communication

Artificial intelligence can be a tool for improving scientific communication, but it is important to be sure of the reliability of the information and its compliance with ICAI values. Therefore, it is important:

TO RELY ON YOUR INSTITUTION AND/OR PUBLISHER, JOURNAL'S POLICY ON THE USE OF ARTIFICIAL INTELLIGENCE

- To be aware of and comply with the policies of relevant publishers, journals and your own institution on the use of artificial intelligence, and refer to them when creating and disseminating science-related information.
- In Lithuania, to follow the Guidelines for the Ethical Use of Artificial Intelligence in Higher Education and Research Process approved by the Office of the Ombudsperson of Academic Ethics and Procedures of the Republic of Lithuania (Office of the Ombudsperson of Academic Ethics and Procedures of the Republic of Lithuania, 2025).

TO CLEARLY DEFINE AUTHORSHIP AND STRENGTHEN LITERACY IN THE FIELD OF ARTIFICIAL INTELLIGENCE APPLICATIONS

- To indicate where and how artificial intelligence was used, it is necessary to maintain academic integrity (Kessler et al., 2025).
- To organise training so that those disseminating scientific information understand the principles of artificial intelligence, the risks and opportunities involved, and avoid irresponsible or unethical use of artificial intelligence (Jobin et al., 2019).

TO RECOGNISE AND LIMIT THE RISK OF DISINFORMATION

- Artificial intelligence can be used to create misleading or pseudoscientific content, so it is essential to verify information (Floridi & Chiriatti, 2020; van Dis et al., 2023).
- To avoid situations where people cannot distinguish between artificial intelligence and human-generated texts as this poses a risk of disinformation (Weidinger et al., 2021).

3.2. Resilience of science communication to disinformation

In order to be resilient to disinformation, it is important to provide information in an accurate and understandable manner (Scheufele & Krause, 2019; Vraga & Tully, 2021). Therefore, it is advisable:

TO COMMUNICATE IN A REASONABLE, ETHICAL AND RESPECTFUL MANNER

- Not to allow information that has no empirical basis to become part of the communication. To provide a clear, concise and fact-based explanation.
- To communicate empathetically or emotionally neutrally, avoid sarcasm, contempt or personal attacks attacks – this can cause a reactivity effect and reinforce people's false beliefs.

TO USE PREVENTIVE STRATEGIES ("PREBUNKING")

- To educate the public about manipulative tactics before they reach the audience. Educational platforms or social networks can be used for this purpose.
- To build on initiatives such as the World Health Organisation's Infodemic Management Programme or UNESCO Guidelines for Combating Disinformation (Ireton, Posetti & UNESCO, 2018; UNESCO, 2021; WHO, 2022).

TO USE A STRATEGIC APPROACH TO DISPELLING MISINFORMATION, BASED ON THE PRINCIPLE OF "TRUTH BUNDLING"

- Along with refuting false narratives, to provide accurate narratives to avoid information gaps.
- To cooperate with fact checkers, the media, academic and international organisations, and actively engage in the public sphere.
- To apply the "truth-bundling" principle: correct information → explanation of the error → correct correct information (Lewandowsky et al., 2020; Ecker et al., 2022; onlineethics.org).

3.3. Feedback

When the audience sees that their opinion is valued and implemented, their trust in the communicator and science itself grows stronger (Illingworth & Allen, 2020). Therefore, it is important:

TO USE VARIOUS STRUCTURED FORMS OF FEEDBACK

- To conduct surveys after events or campaigns to assess the impact of the information (e.g. evaluation questionnaires to help determine the level of understanding, engagement and trust of the audience).
- To gather insights through interviews or focus groups to gain a deeper understanding of the audience's perspective (Harding & Studer, 2018).

TO GET FEEDBACK IN INFORMAL WAYS

- To respond to comments, questions or remarks during events.
- To monitor feedback on social media.
- To informally discuss with participants and reveal problems that may go unnoticed when only formal methods are used (Harding & Studer, 2018).

TO USE FEEDBACK AS A TOOL FOR IMPROVEMENT AND TO STRENGTHEN TRUST

- Don't just collect data; use the information you get to improve the content, channels, style, or tone of your communication. Apply an iterative improvement approach – consistently update your communication based on audience insights (Illingworth & Allen, 2020).

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