

Supplementary Material A

Survey on geoscience communication practices and perceptions

Indicator		Question
Biographical profile		
Biographical profile	Age	Q1. Age: < 30, 30-40, 41-50, > 50 years old
	Gender	Q2. Gender: Female, Male, Other
	Academic context	Q3. Academic degree
		Q4. Degree area
		Q10. Did you receive any training in communication? Yes, no
	Area of expertise	Q5. Area of expertise
		Q6. How do you describe your scientific area? Pure; applied
	Professional category/role	Q7. Professional Category: post graduation student; technician; researcher; higher education professor; elementary and secondary education teacher; science communicator, other
	Professional experience	Q9. Professional experience: < 5, 5-10, 10-20, > 20 years
	Geographical context	Q8. Location of the institution where you work
Experiences / Practices		
Experiences / Practices	Frequency	Q12. How many science communication activities have you carried out in the last year? More than 10; 4-9; 1-3, none
	Type of activities	What kind of science communication activities do you usually promote? (Never; rarely; usually; often) Q11.1 Field trips Q11.2 Visits to museums Q11.3 Visits to science centres Q11.4 Visits to research institutions Q11.5 Workshops Q11.6 Exhibitions Q11.7 Public lectures Q11.8 Public debates / clarification sessions Q11.9 Science showcases (exhibitions, fairs, ...) Q11.10 Books Q11.11 Scientific papers Q11.12 Popular science news articles Q11.13 Opinion articles
		Q20. What kind of science communication initiatives in general have you participated in [Portuguese initiatives]? Select: Science Cafes (Ciência Viva); '90 seconds science' (radio show); Tertúlias FNACiência (public talks); Pint of Science; PubHD; Scientific Culture Day; Science and Technology Week; European Researchers' Night; Other
		Q21. What type of geoscience communication initiatives have you participated in [Portuguese initiatives]? Select: Living Science in Summer – Geology in Summer; Geologist's Day; European Geoparks Week; Mine Route Week, Other
	Contexts	In what contexts do you promote communication activities? (Never; rarely; usually; often) Q18.1 Formal (schools, universities, ...) Q18.2 Informal (museums, geosites, protected areas,...) Q18.3 Unconventional (market, shopping centre, street,...)
		Q22. Indicate the four places in Portugal where you carried out more geoscience communication activities
	Audiences	What audience do you usually communicate with? (Never; rarely; usually; often) Q13.1 Journalists Q13.2 Science journalists

	Q13.3 Students Q13.4 Geosciences teachers Q13.5 Teachers (other fields) Q13.6 Geoscience technical professionals Q13.7 Technical professionals (other fields) Q13.8 Enterprises Q13.9 Researchers in Geosciences Q13.10 Researchers (other fields) Q13.11 Families Q13.12 Politicians Q13.13 NGOs Q13.14 Local communities Q13.15 'General Public'
Peer communication	What kind of science communication activities do you do, targeted at peers? (Never; rarely; usually; often) Q14.1 Scientific meetings and congresses Q14.2 Scientific publications Q14.3 Use of Academia platform Q14.4 Use of LinkedIn Platform Q14.5 Use of Researchgate Platform Q14.6 Participation in online forums Q28. Have you participated in scientific meetings/congress sessions dedicated to Science Communication? Yes, no Q29. Have you made scientific publications on science communication? Yes, no
Institutional communication	How do you participate in the communication of your institution (newsletter, internal newspaper, website, social media, etc.)? (Never; rarely; usually; often) Q15.1 Sending scientific content Q15.2 Sending papers and recent research results Q15.3 Disseminating the participation in scientific events Q15.4 Disseminating of science communication activities
Communication with policy makers	What kind of science communication activities do you do, targeted at policy makers? (Never; rarely; usually; often) Q16.1 Clarification sessions Q16.2 Meetings Q16.3 Non-technical reports
Media	What kind of science communication activities do you do, targeted at media? (Never; rarely; usually; often) Q17.1 Give an interview for the media (newspaper, radio or TV) Q17.2 Participation in media debate Q17.3 Sending a scientific press release Q17.4 Text production for popular science magazines Q17.5 Making opinion texts for non-specialist media Q17.6 Support journalists in clarifying scientific questions
Participatory contexts	Have you performed any of the following science communication activities? (Never; 1 time; 2-3; more than 4 times) Q19.1 Citizen Science activity Q19.2 Public clarification session Q19.3 Debate with local communities Q19.4 Focus groups
Geoparks	Q23. Have you already carried out any communication actions in a Geopark in Portugal? Yes, no Q24. If you answered yes to the previous question (Q23), indicate which one(s)?
Online platforms	Which online platforms do you use to communicate science? (Never; rarely; usually; often) Q25.1 Email Q25.2 Personal blog Q25.3 Institutional blog Q25.4 Personal website Q25.5 Institutional website Q25.6 Facebook (personal account)

		Q25.7 Facebook (institutional account) Q25.8 Twitter (personal account) Q25.9 Twitter (institutional account) Q25.10 YouTube (personal account) Q25.11 YouTube (institutional account) Q25.12 Instagram (personal account) Q25.13 Instagram (institutional account)
		What content related to Geosciences do you share on your social media? (Never; rarely; usually; often) Q26.1 Information related to work at my institution Q26.2 Information related to places where I do fieldwork Q26.3 Events in which I participate Q26.4 Events in my area that I find interesting, even if I don't participate Q26.5 News related to my work Q26.6 News related to colleagues I know Q26.7 Geoscience news that I find interesting Q26.8 Clarifications and opinions in discussion groups
	Geoscientific topics	Q27. Indicate three geosciences topics on which you do communication activities.
Representations / Perceptions		
Representations / Perceptions	Perception of personal preparation	Q30.1 Do you feel with the necessary skills to communicate science? Q30.2 Do you feel prepared to communicate about the social and ethical implications of science? (Not prepared at all; moderately prepared; well prepared; very well prepared; I don't know)
	Position on responsibility	In your opinion, (Strongly disagree; moderately disagree; neither agree nor disagree; moderately agree; strongly agree) Q36.2 do scientists have a moral duty to engage with the non-expert public about the social and ethical implications of their work? Q36.5 would you like to be forced to take a public position on the issues raised by your work?
	Interest in training	Q31. How willing would you be to attend training on communication with journalists and the public? Very willing; moderately willing, not willing at all
	Time	Q32. Regarding your entire professional activity, how important is it for you to find time to engage with non-specialist audiences? Not at all important; not very important; equally important; quite important; very important
	Institution attitude	Q33. To what degree does your institution value communication activities? High; medium; low
	Objectives	What are your goals when you communicate science? (Disagree; moderately agree; strongly agree) Q34.1 to make the importance of geosciences in everyday life known Q34.2 to show that geosciences are interesting Q34.3 to share my passion for geosciences Q34.4 to ensure that the public is better informed about science and technology Q34.5 to enable citizens to make more informed decisions Q34.6 to transmit the science values Q34.7 to support decision makers Q34.8 to know public opinion on geoscientific topics Q34.9 to make my work known Q34.10 to contribute to public debates about science Q34.11 to know the implication of geosciences and of my work in citizens' life Q34.12 to attract professionals to my area Q34.13 to promote the public image of my institution
	Motivations	Why do you do science communication? (Disagree; moderately agree; strongly agree) Q35.1 It is part of my professional duties Q35.2 To attract research funding Q35.3 Because funded research projects require Q35.4 To respond the requests of my institution Q35.5 To respond to invitations (colleagues, journalists, teachers, entities)

	Q35.6 It is scientist's duty
Perceptions about the scientific field	<p>In your opinion: Strongly disagree; moderately disagree; neither agree nor disagree; moderately agree; strongly agree</p> <p>Q36.1 Has your work implications for society and/or policy makers? Q36.3 Is your work interesting to non-specialist audiences? Q36.4 Is your work too specialized to make sense to non-specialist audiences?</p>
Obstacles	<p>What obstacles do you find in the science communication? (Disagree; moderately agree; strongly agree)</p> <p>Q37.1 lack of time Q37.2 lack of financial support Q37.3 discomfort in communicating with lay audiences Q37.4 lack of preparation/training Q37.5 lack of public interest Q37.6 lack of public knowledge Q37.7 negative opinion by peers Q37.8 these activities make science less rigorous Q37.9 the complexity of my scientific field Q37.10 fear of creating misunderstandings and generating controversy Q37.11 misrepresentation of scientific content by journalists</p>
Perception on geoscientific topics	<p>Which geoscience topic do you consider: Q38 most pertinent to communicate? Q39 most difficult to communicate? Q40 easier to communicate? Q41 more attractive to communicate?</p>
Effectiveness of communication channels	<p>Q42 List the most effective communication channels in science communication (List from 1-12)</p> <p>Book, Leaflet/Brochure, Panel, Interactive module, Game, Video, Social media post, News in the media, Scientific paper, Popular science article, Public debate, TV interview</p>
Media	<p>In your opinion: (Strongly disagree; moderately disagree; neither agree nor disagree; moderately agree; strongly agree)</p> <p>Q43.1 The news coverage on geoscience is adequate. Q43.2 The media are more interested in negative stories about geoscience. Q43.3 The media are more interested in sensationalism than scientific truth. Q43.4 Geosciences are too complex to be communicated in the media. Q43.5 Journalists are not scientifically prepared to work on geoscience topics. Q43.6 Journalists do not correctly understand the technical details of science. Q43.7 Most geoscientists fail to adapt their speech for journalists and for the public.</p> <p>Q36.6 In your opinion, engagement with non-specialist audiences is better done by trained professionals and journalists? Strongly disagree; moderately disagree; neither agree nor disagree; moderately agree; strongly agree</p>
Trust in information	<p>Which entities do you trust to do geosciences communication (I don't trust; I trust a little; I trust; I trust a lot)</p> <p>Q44.1 Museums Q44.2 Science Centres Q44.3 Universities Q44.4 Geoparks Q44.5 City councils Q44.6 Governmental institutions Q44.7 Elementary and secondary schools Q44.8 TV Q44.9 Newspapers Q44.10 Popular science magazines</p>
Personal experience and satisfaction	<p>Q36.7 In your opinion, engaging non-specialist audiences in science is personally rewarding. Strongly disagree; moderately disagree; neither agree nor disagree; moderately agree; strongly agree</p> <p>Q45. What do you think about the number of activities you do annually? Reduced; fair; good; very good; excessive</p> <p>Q46. How do you rate your communicator experience? Unsatisfactory; few satisfactory; satisfactory; very satisfactory</p>