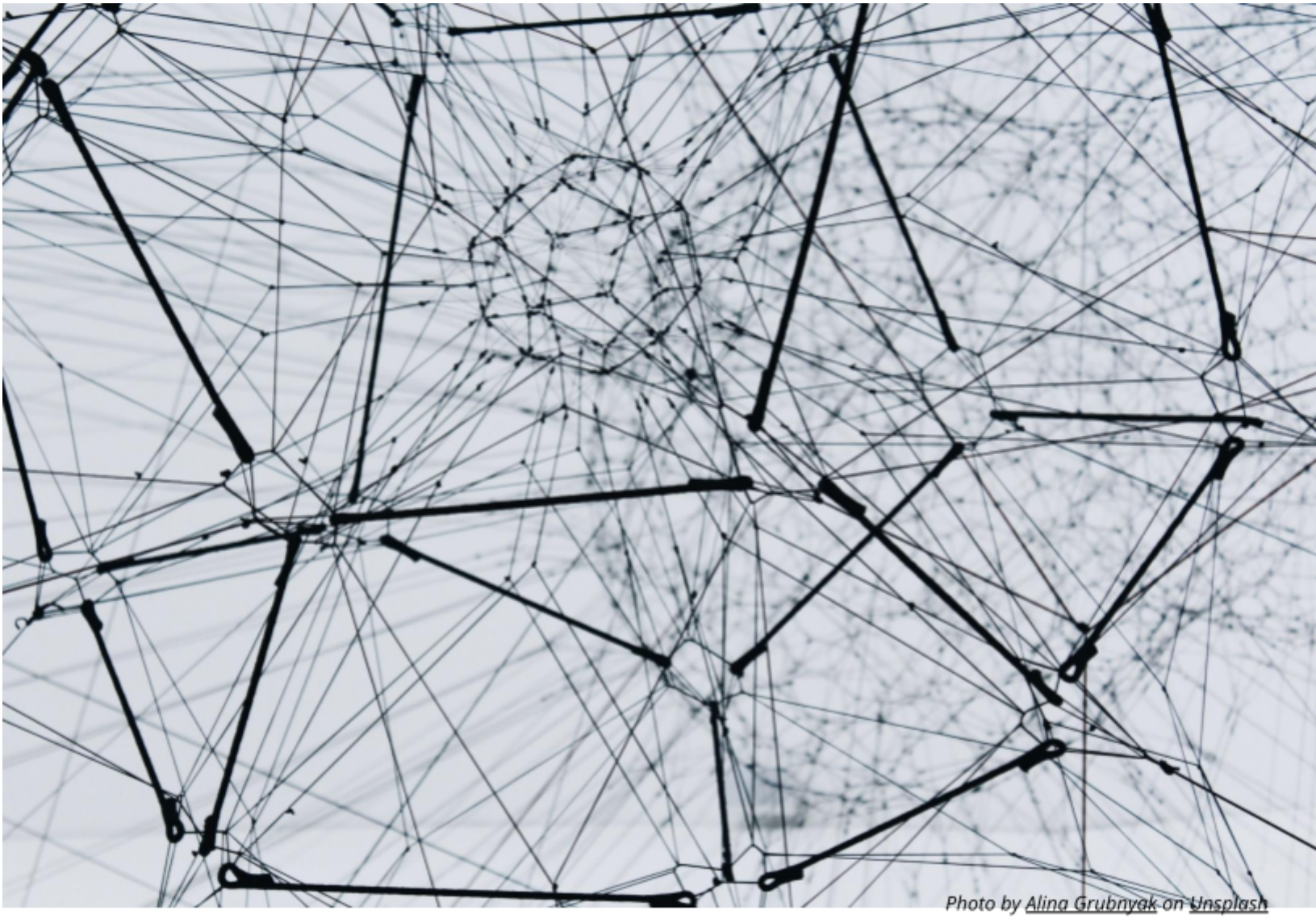

TRESCA

Trustworthy, Reliable and Engaging Scientific Communication Approaches

D2.3 Synthesis report of SciCom Communication Workshops

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 872855.

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EXECUTIVE SUMMARY

The development of digital media in recent years has allowed an exponential increase in the number of actors involved in the production and use of scientific news (Burns, O'Connor, and Stocklmayer, 2003).

The Tresca project has as its main objective to study how more effective communication can be developed in a time of great media changes by analysing the mechanisms that facilitate the development of trust - or mistrust - in science.

In this report we present the results of the analysis of data collected during three Citizen SciCom Workshops. The aim of these workshops was to understand how people interpret the content of science communication videos when the audio is not available. Directly listening to citizens in three European countries - which are Italy, Austria and the Netherlands - the TRESCA team was able to study people's impressions and judgments about two videos about covid19 and, to better understand from participants' voices what a good visual science communication format should look like.

Careful analysis made it possible to grasp the emotions, comments, proposals and difficulties in understanding two specific formats of visual SciCom. The first format included the presentation of the relationship between Covid19 and 5G technology by a scientific communicator. The second format relied on the direct experiences of people who contracted Covid19. By listening to participants' reactions to the videos with and without sound, it was possible to better understand how people build their understanding of science, their previous beliefs, their standpoint and the elements that influence their trust in scientific communications.

The methodological design adopted in the TRESCA Citizen SciCom Workshops enabled us to disentangle the effects of visual elements and audio elements. It was also possible to identify contradictions between images, tone and narrative and viewers' needs. The reflections reported here helped the TRESCA team better understand what the elements are that improve and make for more effective science communication in a time of uncertainty and a global pandemic.

From the analysis of the qualitative data collected from the Citizen SciCom Workshops we learn some interesting lessons. First, it is important to be careful in using emotional language and it is necessary to develop a communication style that is suitable to different types of audiences. In light of these findings, it is better to avoid presenting the topic from

extreme, contradictory positions or to use excessive simplifications in order to avoid producing viewers' rejection of the content and mistrust in the communicator or communication channel.

Second, in order to create productive forms of engagement with the public, it is better to avoid polarisation and disputes. The analysis of the results achieved with the workshops highlights the public's ability to judge and evaluate communication. This competence can be seen as important especially if no preconceived opinions or beliefs are present. It is also important to avoid adopting a typical 'deficit model' approach, that is, embracing an attitude of superiority and arrogance in trying to explain scientific findings to people.

Third comes the issue of trust. Trust in science and scientific institutions is rooted in previous experience and attitudes that cannot be easily changed. There are images and symbols deeply rooted in the public's imagination, whose effects should not be underestimated but taken into consideration (Jovchelovitch 2019). Context in issues of language and culture is always key. There are no easy solutions to avoiding disinformation and the transmission of fake news. It is important to create spaces for people to build their own knowledge and opinions, avoiding sterile controversies or forced conflicts. Fact checking tools and platforms currently available seem to be still unknown to the public. Sometimes they are not easily accessible, other times they are simply ignored or invisible.

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1 INTRODUCTION

Three Citizen SciCom Workshops were held in Italy, the Netherlandsand Austria in December 2020. The qualitative data collected as a result of them made it possible to explore the point of view of selected groups of citizens about the effectiveness of scientific communication through audio and video stimuli.

The scientific topics discussed during the workshops belong to one of TRESCA core thematic areas, as described in the report D1.3 "Report with elaborated focus area descriptions and trending topic analysis". These thematic areas are all about digitalisation, and specifically they focus on: (1) misinformation and digital safety; (2) environ-mental health; (3) automation and the future of skills and work. Given the particular situation experienced as a result of Sars-Covid-2, the Tresca team decided to pay particular attention to issues related to the pandemic which in any case are attributable to the areas described above, in particular to misinformation about health issues as part of the first thematic area.

The methodological design adopted in the Citizen SciCom Workshops was conceived by Vincenzo Pavone of CSIC and developed by the TRESCA team. The format included an experiment setting in which a group of citizens in three countries were presented with two videos. First, participants watched the videos without sound and had the opportunity to share their views and impressions. Then, they watched the video with sound, discovered the actual content of the videos and had again the opportunity to share their impressions. Afterwards, participants were invited to use a fact-checking service to find information on the reliability of the information provided in the videos and had a last chance to share their ideas.

The method made it possible to to detect the effect of audio and visual elements on people's perceptions through an active involvement process. People discussed the role of emotions, the veracity of the information provided, and the role of the different people appearing in the videos.

The great diffusion of news through traditional channels and, in the last ten years, of social media has put at the centre of the attention of many scholars the importance of visual communication and the possibility of the public, through social media, to be multipliers of information and contents. Also due to this enormous potential for the circulation of news, the phenomenon of fake news and inaccurate news on the scientific front has increased dramatically (Bucchi, 2004).

Because of all these trends, it is important to reflect on the chain of trust that is established between scientists and scientific institutions and society, and in the public role of experts as intermediaries of scientific truths. The advent of the pandemic has produced an overexposure to the media of scientific experts in almost all countries and therefore there has been a unique opportunity to study how public communication of science and the reactions of the public are developing.

For this reason, after a careful selection, it was chosen to propose two videos on the theme of the pandemic and also on the role of specific fake news on covid19. It was possible to collect from citizens' discussions interesting considerations here reported. First of all, the role of the actors involved in the course of the videos. Easily recognised institutional figures have aroused interest and signaled their credibility in proposing scientific news. In other cases, particularly in the first video, when the role and function of some actor could not be recognized, the participants found themselves disoriented. Secondly, considering emotions, it was noted that participants easily grasp situations of high tension and normally tend not to accept them in the context of scientific communication, especially in the case of a health issue such as that of the pandemic. Thirdly, speaking of images, the analysis shows a strong evocative capacity of some of them, pointing out how strongly some stereotypes and beliefs are deeply rooted in the public's media memory.

1.1 Relationship with other working packages

This report is part of WP2 and builds on WP1 findings and contributo the WP4 and WP5 activities. Based on the work previously carried out by the TRESCA team in WP1, particularly in D1.1 “Meta-Analysis map: relevant factors shaping public perception of science communication” and D1.2 “Science communication and policy trend report”, the Tresca team identified some characteristic elements as part of the work carried out in WP2: the social relevance of public science communication, the influence of political priorities lines in shaping defining an agenda mass media, the relevance of digital the media in the transmission of scientific contents. The content of this report will be used to carry out the next activities planned in the various WPs of the Tresca project (survey, MOOC, blog etc.). Finally, the conclusions of this deliverable will allow us to offer appropriate lines of interpretation to the process of understanding public communication and the impact that digital information is having in this delicate period.

2 SciCom workshop methodology

Workshops were held in Italy, Austria and the Netherlands. Each event took place on a different day, these were chosen by each country partner based on its national cultural habits and ideal timeline to maximize citizens engagement and participation.

Workshops were designed by Vincenzo Pavone of the CSIC team and tested out through a pilot event in order to identify possible shortcomings and points for improvement. The pilot was conducted by the Observa team on Saturday the 3rd of October 2020 with a total of 8 participants. Thanks to the insights gathered during the pilot workshop, some small adjustments could be made to the structure of the event Specifically, extra time was allocated to the two discussion sections; workshop questions were slightly re-oriented in order to capture opinions and points of view in line with the objectives of the TRESCA project.

TRESCA SciCom Workshops were held in Italy, the Netherlands and Austria in December 2020. The Italian Workshop was held on Saturday 5th of December 2020, comprising a total of 34 participants, divided into four groups (group1: 9, group 2: 9, group 3: 8, group 4: 8). Recordings of participants' discussions were transcribed and subsequently analysed.

The Dutch Workshop was held on Saturday 12th of December 2020, comprising a total of 13 participants, split into three groups (group 1: 4, group 2: 4, group 3: 5). Participants' interventions were recorded , transcribed and subsequently analysed.

The Austrian Workshop was held on Friday 4th of December 2020, comprising a total of 17 participants, divided into four groups (group 1: 4, group 2: 4, group 3: 4, group 4: 5). All workshop recordings were transcribed and subsequently analysed.

A more detailed description of the Workshop for each single country can be found in the country-specific sections below. All insights gathered from the analyses of the transcriptions were compared for similarities and discrepancies, discussed and presented in the conclusions.

2.1 SciCom workshop procedure

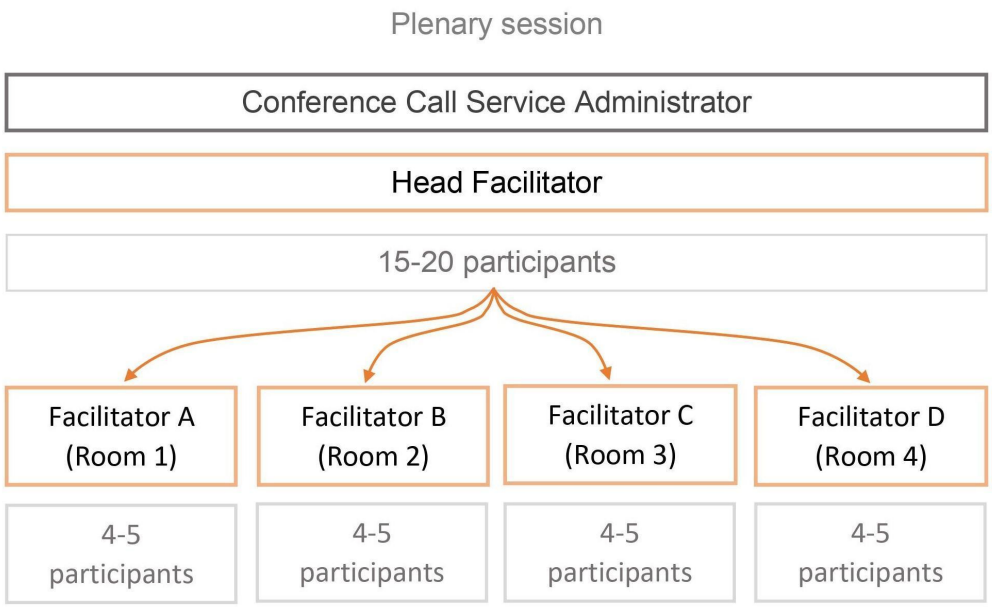
All events took place on the video conferencing service Zoom. Workshops were organised as follows. Participants gathered in the main virtual room for a brief introduction to the event before they could join their respective groups in the smaller breakout rooms. Once in the breakout rooms, each group could begin the discussion session.

Discussion round one took place after participants, and moderators alike, watched the two videos without sound. The sound was initially withheld to explore the impact of visual communication on communication perception, particularly emotional response, subject and image recognition. Discussion session number two took place after participants and moderators watched again the two videos with their original audio tracks. The comparison between participants' reactions to the videos with and without sound helped the TRESCA team focus on the impact of images and words on participants' perceptions of the science communication videos.

A set of 6 questions were posed to participants in each group: three questions were asked during the first session (without sound) and three questions were asked during the second session (with sound). These questions helped the team investigate the most relevant issues surrounding scientific communication and communication in general in line with Tresca's project objectives.

Finally, all participants came back to the plenary room and discussed what emerged during the group sessions. Each group made suggestions and offered recommendations on how to improve visual scientific communication.

Figure 1: Initial WS design



3 Pilot of citizen SciCom workshop

The TRESCA workshop pilot was held in an online environment, through the video conferencing platform, Zoom, on October 3rd 2020 with Italian participants. Two and a half hours were optimal to run the pilot without making the participants feel tired. Interesting points of view and food for thought were revealed by the participants.

Some suggestions on how to slightly change the format in order to make the workshop even more effective and efficient were identified. Among these amendments to the format it is worth mentioning the duration of group discussions (30 to 35-40 minutes) to give the chance to everybody to talk.On the same line, in order to facilitate people's reflection and formulation of their point of view, more time was allocated at the beginning of the first and second session to share ideas or take written notes.

Before the last round of discussion, participants were invited to search for information on a fact checking website in order to verify the reliability of the news presented in the two videos. Most participants did not know the fact-checking service or had never used a similar platform.

3.1 Agenda

TRESCA Workshop pilot hosted a small number of participants; the programmed schedule of agenda below was precisely followed.

Table 1: Workshop Agenda of the pilot

AGENDA WORKSHOP TRESCA	
10:00 – 10:10	Introduction and presentation
10:10 – 10:45	Video without sound, postcards and group discussion (**Zoom** breakout rooms for group discussion)
10:45 – 11:00	Break
11:00 – 11:35	Video with sound, personal comments and group discussion (**Zoom** breakout rooms)

11:35 – 11:40	Website news checking
11:40 – 12:10	Recommendation
12:10 – 12:30	Questionnaire and conclusion

The pilot ended earlier because of the limited number of participants. Certainly, in the case of the workshop with several more participants, the duration of each slot should be adjusted and slightly extended. Since the duration of the discussion phases seemed not very adequate, at least for one group, the duration of the working session was extended to 40 minutes. Below comes the revised schedule and agenda, which show the duration of the various slots and activities.

Table 2: Workshop agenda after the pilot

AGENDA WORKSHOP TRESCA	
10:00 – 10:10	Introduction and presentation
10:10 – 10:50	Video without sound, personal notes and group discussion (**Zoom** breakout rooms for group discussion)
10:50 – 11:05	Break
11:05 – 11:45	Video with sound, personal notes and group discussion (**Zoom** breakout rooms)
11:45 – 11:50	Website news checking
11:50 – 12:20	Recommendation
12:20 – 12:30	Questionnaire and conclusion

3.2 Videos

Videos for the pilot and the workshops were selected out of a list of thirty videos in total. The two selected covered different themes and were expected to generate contrasting reactions amongst participants. While all videos identified could serve these purposes, the two finally selected were considered the most appropriate and effective ones.

Video number one presented a very fast sequence of images. Some participants said to strongly dislike these images, especially when the audio was not present. Video number two was slower and smoother in comparison and allowed participants to focus on a different set of emotional responses and perceptions because it showed the faces of people talking.

The comparison between the version with audio and the one without it allowed to detect significant changes of opinions. Somehow this consideration confirms the idea that an information stimulus must have both images and audio to transmit the contents in an accurate way. The title and link to the videos finally selected is included in the table below. Subtitles in Italian, Austrian and English were added by the TRESCA team to the videos to help participants follow the contents of videos while watching them with sound.

Table 3: Videos selected as stimulus

Issue	Documentary video	Talk show video	Description
Covid -19	No, 5G Is Not Causing Coronavirus (or Anything Else) https://www.youtube.com/watch?v=KassIV7qLGk		Viral online posts claiming 5G is causing coronavirus are absolutely wrong. Conspiracy theorists are taking them seriously, however, and some are turning violent. Here's why their arguments are nonsense. • Images and other videos included • Generally clear semantic • Understandable • For now, just auto generated English subtitles • No cuts needed • Misinformation *Time: 3 mins*
		'Do not ignore this': COVID-19 survivors speak out during DeLand round table https://www.youtube.com/watch?v=FlH5DKNsuy0	'Do not ignore this': COVID-19 survivors speak out during DeLand round table • Images • Understandable • Different perspective and experiences • No cuts needed • For now, just auto generated English subtitles *Time: 2 mins*

3.3 Postcards notes and participation

The postcards were not used due to the timing and the organisation of the workshops in the online mode. It is good to give some time to participants to annotate their initial reflections before the discussion rounds. In a simple way they will be able to collect notes even on a sheet of paper and deliver them at the end in order to leave a mark of their interventions. The chat space can also be used for comments to encourage the active participation of participants.

We have noticed that with the online mode it is important to help the participants to intervene avoiding overlapping. For this reason, the moderators will have to guide the interventions favouring the order of speech.

3.4 Participants of the pilot

Participants were recruited for the pilot with the intention of remaining as faithful as possible to the target group, which were lay people. For convenience, educational levels were higher than expected in the pilot group than in the final group of study participants. Overall, demographic deviations were very small.

Table 4: Pilot sample

Pilot effective sample n: 8; (%)		Theoretical sample for recruitment n: 50; (%)
Gender	**n; (%)**	**n; (%)**
Female	4; 50	26; 52
Male	4; 50	24; 48
Age ranges	**n; (%)**	**n; (%)**
18-34	4; 50	10; 19
35-54	2; 25	18; 36
55 or >	2; 25	22; 45
Educational level	**n; (%)**	**n; (%)**
Primary education + Lower secondary	1; 12,5	27; 55
Upper Secondary school	6; 75	16; 32
University degree	1; 12,5	7; 13
Rural/Urban background	**n; (%)**	**n; (%)**
Rural	3; 37,5	10; 20
Urban	5; 62,5	40; 80
Nationality	**n; (%)**	**n; (%)**
Non-local	0; 0	4; 8

Local	8; 100	46; 92
Disability	**n; (%)**	**n; (%)**
Disability	0; 0	3; 7
No-disability	8; 100	47; 93
Minority**	**n; (%)**	**n; (%)**
Gipsy	--*; 0	--*; 0
Non-gipsy	8; 100	50; 100

3.5 Questions asked during the pilot

The discussion sessions revealed some interesting points of views and promising suggestions and recommendations emerged. Participants were able to freely express themselves by answering the questions. It would be an improvement to find a way to reveal thoughts about trust and/or conspiracy theories.

3.5.1 First group discussion

During the pilot workshop, in the first group discussion, the following questions were asked:

1A. Opening question: thinking about the videos you have just seen would you be able to describe how you feel? And what's about the content, the topic they were about? Try to think a little and then come up with your ideas.

In the question above, it has been noticed that questions about emotional reactions should be asked after the other questions, in order to make the conversation more fluid.

1B. In your opinion what are the key messages they wanted to convey with the first and second videos?
1C. analysing the second video, how would you describe the participants and the information they provided?"

3.5.2 Second group discussion

During the pilot workshop, in the second group discussion, the following questions were asked:

2A. Considering the video with sound, did you find differences between what you thought the videos were about and what was indeed discussed in them?
2B. Considering the first video, do you think this is a correct way to propose a topic such as Covid-19? Is it clear?

These questions will be clarified, because some participants did not understand the task. It will be adapted at the chosen video and more based on understanding whether the participants believe that this video is suitable for revealing fake news as such or not.

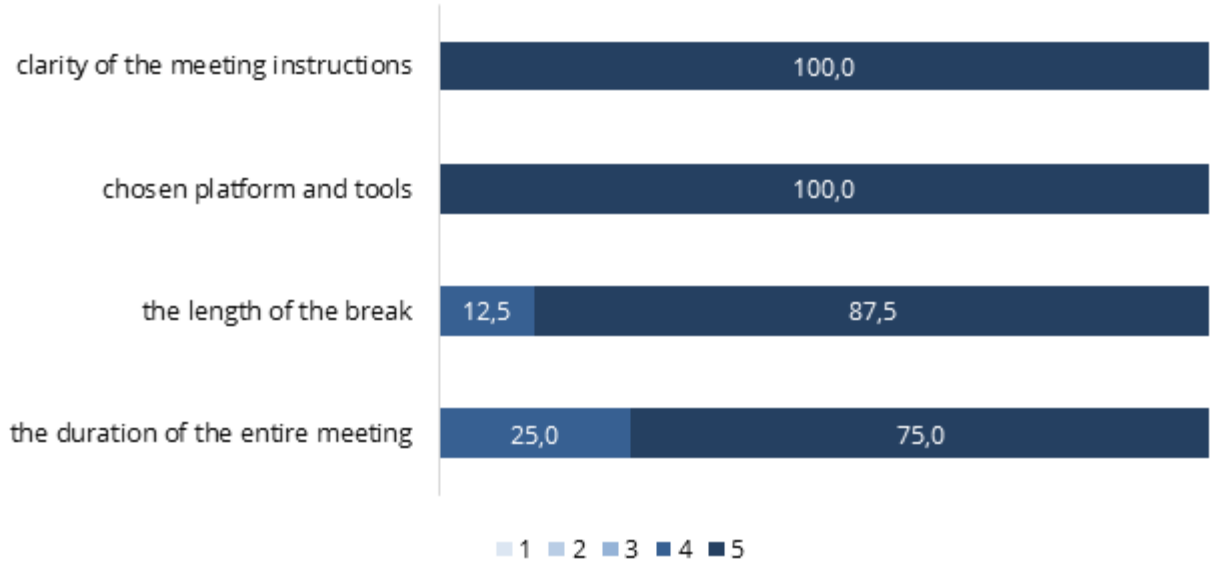
2C. Considering the contents of the second video, do you think they are appropriately conveyed? Do you think that the information provided by the participants was clear and helped your understanding of the experience of going through Covid-19?

3.6 Evaluation questionnaire for the pilot

At the end of the Workshop pilot, an evaluation questionnaire was administered to the participants. The response was immediate from all the participants. LimeSurvey was used to put the questionnaire online and the link to it was sent to Zoom's chat. We recommend giving them 5 minutes to answer the questionnaire, or, alternatively, returning the link to the questionnaire in the thank you email, with the certificate of participation attached.

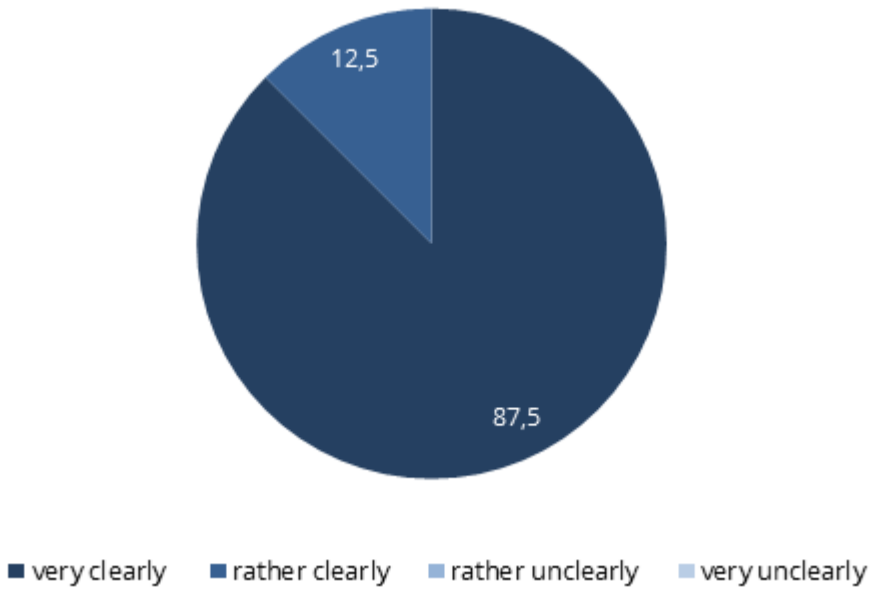
The evaluation questionnaire begins by asking for an evaluation of the organisational aspects.

Figure 2: How do you evaluate the organization of the workshop in terms of: (Please put an X in the selected field, 1 means the lowest and 5 the highest grade) (n: 8)



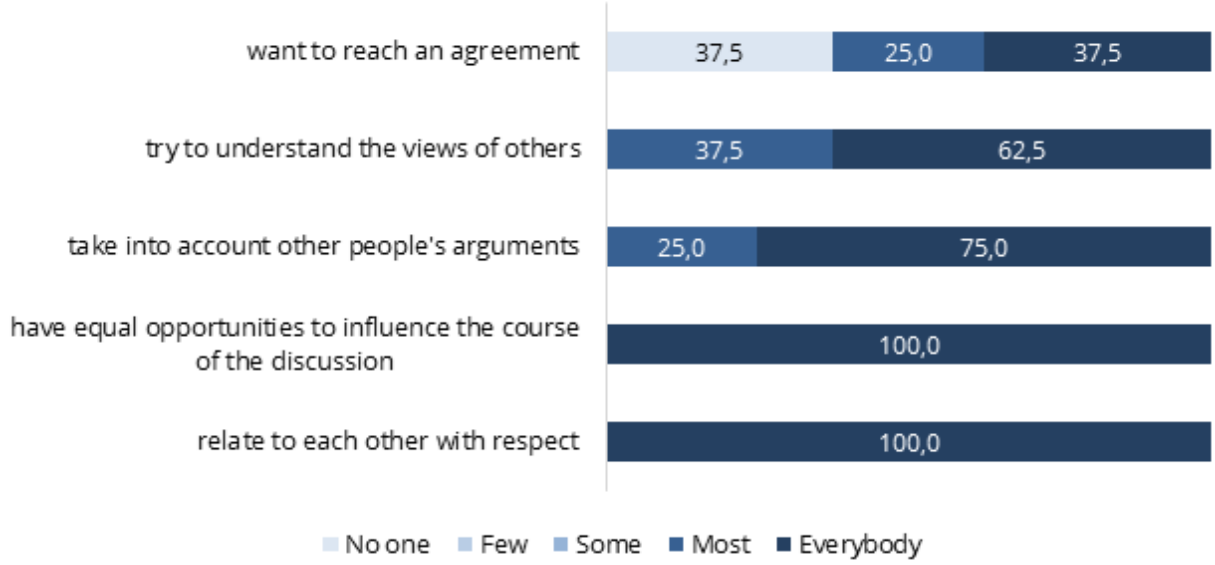
The participants were generally satisfied with the organization of the workshop, to which they all gave top marks regarding the chosen platform and the clarity of the instructions. Not the entirety of the sample was totally satisfied with the duration of the break and the meeting, but still expressed positive to very positive opinions also regarding these aspects.

Figure 3: In your opinion, the discussion rules were presented: (n: 8)



Participants also expressed an excellent evaluation regarding the clarity of the discussion rules and the way in which they were presented. Almost everyone found the discussion rules presented very clearly (87,5%), while a small part (12.5%) considered them presented rather clearly.

Figure 4: How can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), positive behaviour (n: 8).

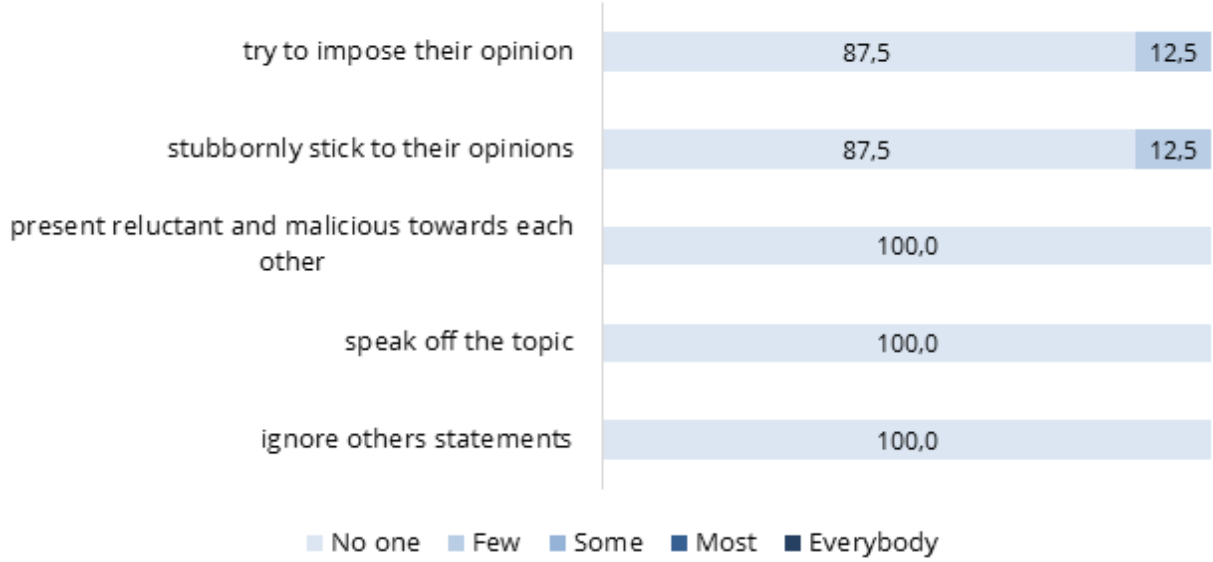


Participants were also asked to comment on how they perceived the behaviour of others. As for the positive behaviours, everyone agrees that the other participants had equal opportunities to influence the course of the discussion and related each other with respect. Respondents mostly agreed that most or everybody took into account other people's arguments and tried to understand the views of others.

Instead, more discordant opinions can be noted regarding the belief that the participants wanted to reach an agreement, in which most of the answers are oriented between "some" and "everybody" wanting to reach an agreement. The remaining classify their opinion with a middle ground: "most". Considered together with the other responses on relating with respect and taking into consideration the arguments of others, this suggests that the discussion was positively evaluated and that the participants expressed their ideas with mutual listening, without trying to impose their opinion.

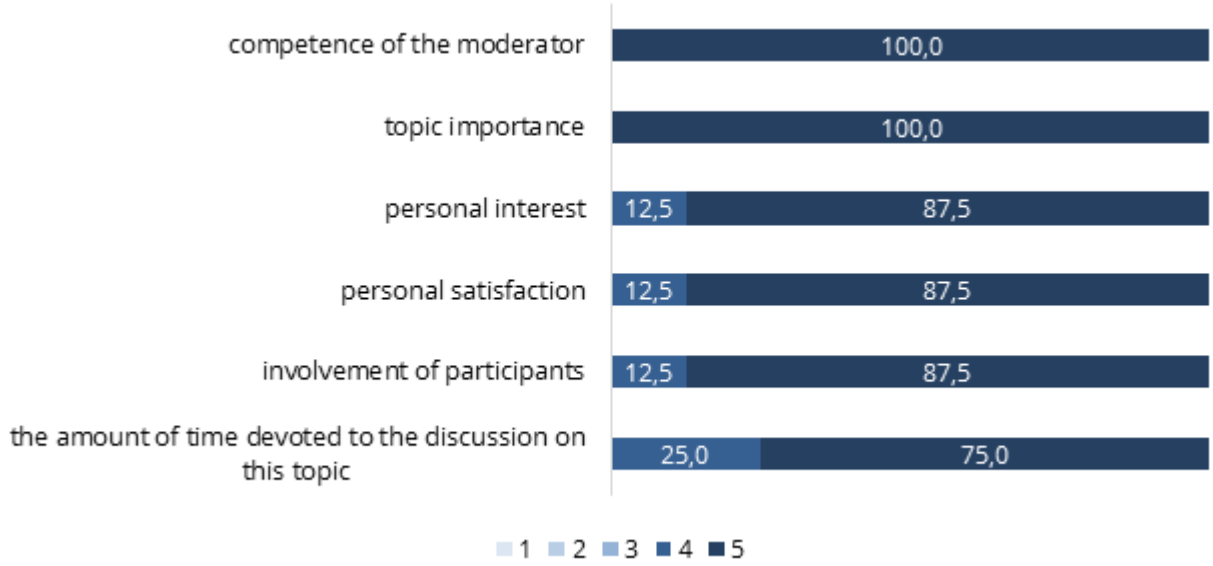
As it can be seen in the figure below, only 12.5% believe that few have tried to impose their opinion, while the remaining 87.5% have not seen this attitude from anyone. The same response rates were observed with regard to the perception, within the group, of an attitude of being stubbornly stuck to their opinions.

Figure 5: How can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), negative behaviour (n: 8).



Everyone thinks that no one had presented reluctant and malicious towards each other, ignored others statements or even spoke off the topic.

Figure 6: How do you evaluate the group discussion on video without audio on COVID-19 in terms of: (n: 8)

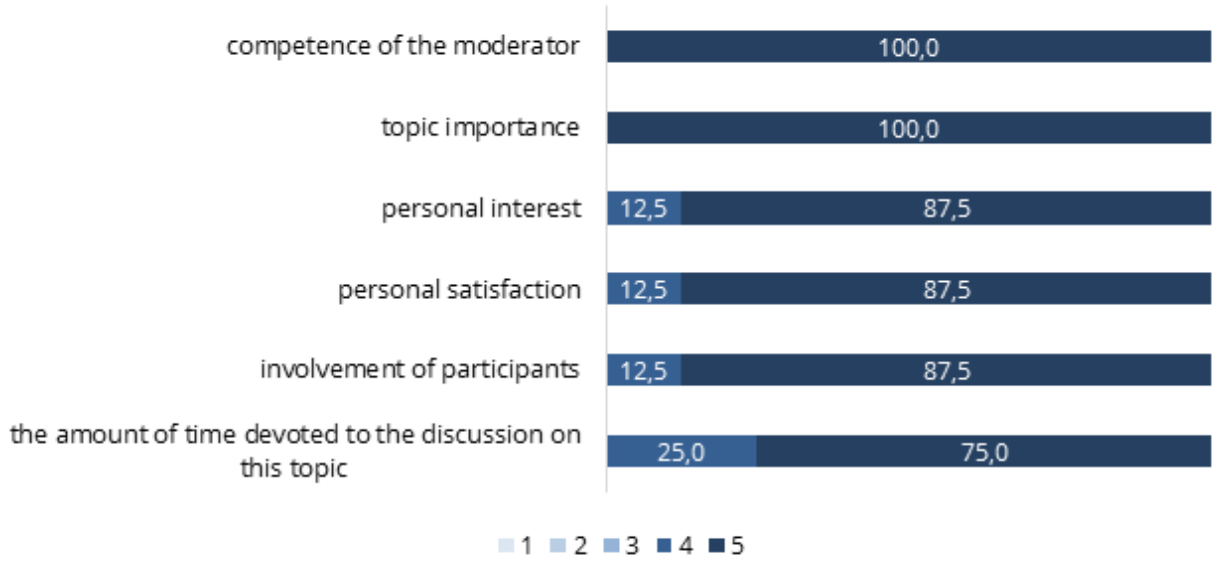


Almost everyone assigned the maximum score to the skills of the moderator of their group, and to the importance of the topic. Almost everyone also assigned the maximum score to

the interest and personal satisfaction towards the discussion and involvement of the participants.

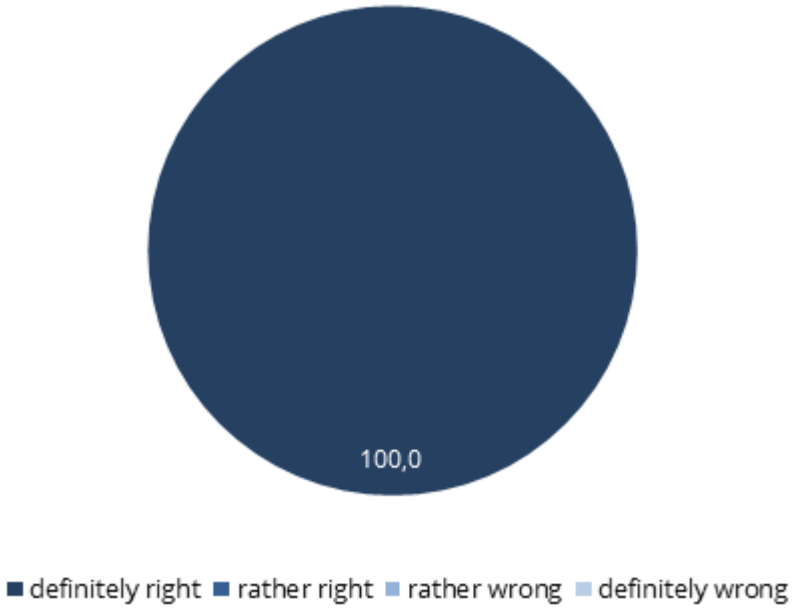
A small fraction of the respondents voted 4 out of 5, a positive vote but not the highest, to the amount of time devoted to the discussion on this topic, but most were satisfied with this aspect too.

Figure 7: How do you evaluate the group discussion on video with audio on COVID-19 in terms of: (n: 8)



Evaluating the answers of the second discussion, it is interesting to notice that there are no variations from the first discussion.

Figure 8: In your opinion, are such meetings the right or the wrong way to collect opinions on topics related to the ways of communicating the knowledge provided by scientists? (n: 8)



All respondents believe that such meetings are definitely the right way to collect opinions on topics related to the ways of communicating the knowledge provided by scientists.

The participants were 8 citizens (4 males and 4 females) with an age range of 42 years, the oldest was born in 1957, the youngest in 1999.

Half of the participants left a comment:

- The TRESCA Workshop was very interesting and addressed complex scientific topics in an engaging and participatory way.
- Adequate timing and management. Thank you
- The workshop was very interesting and an excellent method of comparison between people who do not know each other. Throughout the discussions, many ideas and suggestions emerged that in the hands of those who will have to re-elaborate everything are “a lot of meat in the fire”.
- The Workshop was very interesting and managed by a group of people who had the ability to put the interviewees at ease.

3.7 Conclusions and lessons learned from the pilot

The pilot workshop was very helpful in fixing those aspects where the structure of the event was a little weak. Overall the format demonstrated to be very solid and able to work well without too many alterations.

The pilot workshop allowed the Observa team of the TRESCA project to verify the objectives and methods of conducting an online format. In general, we can say that the meeting took place regularly respecting most of the expectations. The times seemed adequate and the participants showed interest and a spirit of collaboration.

We believe it is possible to make some small adjustments regarding the methods and times in order to favour an effective development of the Workshop.

From a thematic point of view, some questions can be better oriented in order to collect opinions and points of view in line with the objectives of the TRESCA project.

The evaluations of the participants were more than satisfactory in various dimensions and confirm that the format is effective. From the point of view of the dynamics of discussion and participation, no particular difficulties were noted.

Finally, the participants stated that these engagement modes are effective for gathering opinions and suggestions on the public communication of science.

4 The Italian Citizen SciCom Workshop

The Italian TRESCA Workshop was conducted by Observa on Saturday December 5th 2020 via Zoom, the video conferencing platform. The Workshop ran smoothly and did not run into any major technical problems. Some participants' internet connection was slightly less than optimal at times, however, this did not significantly impact the Workshop results.

The output of the workshop consisted in slightly over 5 and a half hours of recordings, 31 evaluation questionnaires, 4 transcription files and some whiteboard notes made by the moderators.

In total, 34 people participated in the Italian workshop plus four moderators and one head facilitator. The length of the event was optimal to do everything without tiring the participants. Group discussions were effective in gathering interesting points of view and providing valuable insights.

4.1 Organization of the workshop

TRESCA Workshop hosted a great number of participants and the timing programmed in the event agenda was followed with a maximum of 5 minutes delay.

Table 5: Workshop Agenda for the Italian Workshop

TRESCA WORKSHOP AGENDA	
10:00 – 10:10	Introduction and presentation
10:10 – 10:50	Video without sound, personal notes and group discussion (**Zoom** breakout rooms for group discussion)
10:50 – 11:05	Break
11:05 – 11:45	Video with sound, personal notes and group discussion (**Zoom** breakout rooms)
11:45 – 11:50	Website news checking
11:50 – 12:20	Recommendation
12:20 – 12:30	Questionnaire and conclusion

Due to the large number of participants, during the Workshop these times have been adjusted and slightly extended. Since the duration of the discussion phases seemed not

entirely sufficient, at least for a couple of groups, we thought to extend the work with the planned group activities to 45 minutes each.

We made contact with 96 people, 21 declined the invitation, 41 were undecided and we considered them as a backup list, 34 participated at the Workshop. For each one of the contacts, we provided the material to consciously decide to participate or not, and had **213** contacts via e-mail and/or telephone.

4.1.1 The Zoom conferencing service

The Zoom video conferencing platform was chosen to host the workshops. The widespread knowledge of the platforms and its wide array of intuitive features were among the reasons which led to this choice.

Suggestions were given to the moderators to facultative use some post-it or the shared whiteboard. Some of them used it and such images have been stored.

4.1.2 Recruitment of participants

Participants are a central part of TRESCA's research and tool development. Participation in TRESCA activities will be 100% voluntary. Participants will be healthy, adult volunteers who are in the position to understand and consent to our proposed research.

Being a qualitative research, the sample will not be representative of the society of each country, but it must be sufficiently plural and inclusive to be similar to the reality of each case study.

During this process TRESCA partners should take into account these variables:

- Gender
- Level of individual finalized studies
- Geographic areas
- Rural or Urban backgrounds[1]
- Cultural minorities representation (Kvens, Jews, Taters, roms, Gypsies…)[2]

[1] Following the EU regulation, we consider urban areas a minimum population of 5.000 inhabitants

[2] The Council of Europe Recommendation 1201 (1993) define a "national minority" as «a group of persons in a state who reside on the territory of that state, who maintain long standing, firm and lasting ties with that state, display distinctive ethnic, cultural, religious or linguistic characteristics, is sufficiently representative, although smaller in number than the rest of the population of that state or of a region of that state and is motivated by a concern to preserve together that which constitutes its common identity, including its

The recruitment process has been done using different channels and media. In order to reach out for potential participants an invitation will be made available at the end of August 2020.

Newsletter, website and social network has been utilised for recruitment purposes. Participants have been selected using the above variables.

Due to the COVID-19 health emergency and following the health directives, the TRESCA Workshop has been carried out online, via Zoom, in order to respect social distancing and avoid gatherings. Nonetheless, a few people have been allowed to get together, in the case a participant or a hub decided to invite a couple of, for example, relatives or cohabitants. This has been proposed in some specific cases and always in accordance to what was allowed by the anti-COVID-19 legislation in each country at the moment of the workshop, meeting the sanitary requirements and following all the sanitary protocols and safety distance between participants.

Such strategy had important advantages:

- Easier recruitment;
- Possibility to ask for specific demographic characteristic;
- Technical help for the elders;
- Easier to manage;
- The hubs helped the organization to collect all the forms;
- Less device connected so less connection potential issues.

Even when hubs did not invite the participants to physically meet, they helped us with the recruitment nonetheless. In practice, the snowball recruitment technique has been used to gather some of the Italians participants.

The groups were divided in a sufficiently plural and inclusive way and variables such as gender, immigrant population, level of individual finalized studies and geographic areas were taken into account.

Every partner also took into account national regulation on the minority's definition. For instance, in Italy, the gipsy population, which is classified as RSC (Rom, Sinti and Caminanti, Istat 2017) is around 0.23 of the population - one of the lowest percentages recorded in

culture, tradition, religion or language». This is a general definition which must be related to the legislation of individual countries where the workshops will take place.

Europe. In view of this very low percentage, it is not possible to consider a quota for our sample. Minorities could be considered in ethnic terms with the involvement of some foreigners who can be identified under their nationality.

In case of some unforeseen events or for other reasons (illness and family difficulties) volunteers could not participate, but had not time to provide a reasonable notice. In order to achieve a sufficiently large number of participants, a reserve list of participants had been prepared in order to activate an immediate replacement. The reserve plan also considered the variables mentioned above.

Following a table with the theoretical and Workshop sample for Italy. In order to be inclusive and similar to the reality of the nation, we have taken into account the data from ISTAT[3], the National Italian Institute of Statistics.

Table 6: Theoretical and Workshop sample by gender, age, educational level, rural/urban background, nationality, disability and minority, in numbers and percentage.

Theoretical sample for WS n: 32; (%)		Workshop sample n: 34; (%)
Gender	**n; (%)**	**n; (%)**
Female	17; 52	21; 61,8;
Male	15; 48	13; 38,2
Age ranges	**n; (%)**	**n; (%)**
18-34	6; 19	14; 41,2
35-54	12; 36	15; 44,1
55 or >	14; 45	5; 14,7
Educational level	**n; (%)**	**n; (%)**
Primary education + Lower secondary	18; 55	3; 8,8
Upper Secondary school	10; 32	13; 38,2
University degree	4; 13	18; 53,0

[3] http://dati.istat.it/Index.aspx?QueryId=18462

Rural/Urban background	**n; (%)**	**n; (%)**
Rural	6; 20	9; 26,5
Urban	26; 80	25; 73,5
Nationality	**n; (%)**	**n; (%)**
Non-local	3; 8	0; 0,0
Local	29; 92	34; 100,0
Disability	**n; (%)**	**n; (%)**
Disability	2; 7	1; 3,0
No-disability	30; 93	33; 97,0
Minority**	**n; (%)**	**n; (%)**
Gipsy	--*; 0	0; 0
Non-gipsy	32; 100	34; 100,0
Geographic area	**n; (%)**	**n; (%)**
North-west	9; 27	9; 26,5
North-east	6; 19	12; 35,3
Centre	6; 20	4; 11,8
South	7; 23	3; 8,8
Islands	4; 11	6; 17,6

* In Italy, the gipsy population, which is classified as RSC (Rom, Sinti and Caminanti, Istat 2017) is around 0,23 of the population - one of the lowest percentages recorded in Europe. In view of this very low percentage, it is not possible to consider a quota for our theoretical sample.

** Minorities are considered in ethnic terms with the involvement of some foreigners who can be identified under Nationality.

4.1.3 Recruitment and training of the moderators

The moderators for the italian workshops were selected among expert researchers from various disciplines within the Observa network. Moderators were trained prior to the workshops on the use of the Zoom web platform and its breakout rooms to ensure full operativity on their part on the day of the workshop. Furthermore they were instructed on the best practices to securely pilot the groups conversations and stay on theme with the relevant subjects.

4.1.4 Limitations and sample composition

As shown by the Table Theoretical and Workshop sample, some recruitment issues have occurred: it was hard to meet the age and educational level of the theoretical sample given the necessity to carry the Workshop online and the way that the recruitment has been done. Involving elders in a Zoom conference, particularly in a country such as Italy where digital literacy is rather low, has been difficult.

Those who were contacted and who had a low educational level, with some exceptions, showed little interest in the initiative. At the same time, we have found a good or higher level of participation and interest from people with a high educational level. This may depend on our catchment area only in part, since we have also encountered similar issues through the mediation of the hubs.

4.1.5 Usefulness of the material developed for the workshop

The materials developed were useful in order to carry out a traceable and privacy-compliant recruitment campaign, to give a well-defined shape to the Workshop and its timing and to effectively communicate the needs and expectations to the facilitators.

The materials have also made it possible to collect further data on the opinions of the participants thanks to the evaluation questionnaire and gave an appreciation token to volunteers and staff through certificates of participation.

4.2 Agenda of the Italian workshop

The output proofs of the activities were mostly the recordings and their transcriptions. Also, some notes made by facilitators and staff were gathered, with the images of the whiteboards shared during the discussion activities and the recommendations. Followed a table with the transcription time.

Table 7: Registrations and transcription time – Italian Workshop

Registrations				Transcription time
Activities	**Start at**	**End at**	**File name**	**Transcribed minutes**
Introduction	00:00	04:47	Introduzione.mp4	---
Group 1 Giuseppe	00:00	34:48	Giuseppe-WP.mp4	00:34:48
Group 2 Giuseppe	1:00:21	1:37:32	Giuseppe-WP.mp4	00:37:11
Group 1 Andrea	00:00	40:45	AndreaWS.mp4	00:40:45
Group 2 Andrea	41:36	1:23:26	AndreaWS.mp4	00:41:50
Group 1 Letizia	00:06	33:33	Letizia-gruppo1.mp4	00:33:27
Group 2 Letizia	00:06	42:02	Letizia-gruppo2.mp4	00:41:56
Group 1 Ilaria	00:11	37:20	Ilaria-gruppo1	00:37:09
Group 2 Ilaria	00:17	39:27	Ilaria-gruppo2	00:39:10
Recommendations	1:51:10	2:11:40	Giuseppe-WP.mp4	00:20:30
Total				**5:36:46**

The 34 participants of the consultation have been divided in 4 groups. These subgroups have been defined in advance during the selection process taking into account the homogenization variables (level of studies, social class…) to favour the interaction and to ensure that the members do not know each other but also maintaining some diversity within tables (age, gender, cultural background…).

Table 8: Italian Workshop, First group

1st group			
Gender	**Age**	**Area**	**Degree**
Female	18-34	North-west	Upper Secondary school
Female	35-54	Islands	University degree
Female	35-54	North-west	University degree
Female	35-54	South	University degree
Female	55 or >	North-east	University degree
Male	18-34	North-east	Upper Secondary school
Male	18-34	North-east	Upper Secondary school
Male	18-34	South	University degree
Male	35-54	South	Primary education + Lower secondary

Table 9: Italian Workshop, Second group

2nd group			
Gender	**Age**	**Area**	**Degree**
Female	18-34	North-west	University degree
Female	18-34	North-west	Upper Secondary school
Female	35-54	North-east	University degree
Female	35-54	North-east	University degree
Female	35-54	North-west	University degree
Female	55 or >	North-east	Upper Secondary school
Male	18-34	North-west	Primary education + Lower secondary
Male	35-54	Islands	Upper Secondary school
Male	55 or >	Center	University degree

Table 10: Italian Workshop, Third group

3rd group			
Gender	**Age**	**Area**	**Degree**
Female	18-34	North-east	University degree
Female	18-34	North-west	Upper Secondary school
Female	18-34	North-west	Upper Secondary school
Female	35-54	Center	University degree
Female	35-54	Islands	Upper Secondary school
Male	18-34	North-east	Upper Secondary school
Male	55 or >	Center	University degree
Male	55 or >	North-east	Upper Secondary school

Table 11: Italian Workshop, Fourth group

4th group			
Gender	**Age**	**Area**	**Degree**
Female	18-34	North-east	University degree
Female	18-34	North-east	University degree
Female	18-34	North-west	Upper Secondary school
Female	35-54	Center	University degree
Female	35-54	Islands	Upper Secondary school
Male	35-54	Islands	Primary education + Lower secondary
Male	35-54	Islands	University degree
Male	35-54	North-east	University degree

4.3 First Group Discussion

Generally, the discussion sessions exploit some interesting points of views and result in good suggestions and recommendations. It would be an improvement to find a way to reveal thoughts about trust and/or conspiracy theories. During the first discussion activity, the following question has been asked:

Thinking about the videos you have just seen,
A1. What do you think was the content of each of them?
A2. how would you describe the emotions that each of them made you feel?
Write your answer in the chat box or on a piece of paper.
A3. What are the images in each video that triggered your curiosity or that you remember better?
A4. Do you think the videos are about science communication or not? Who do you think the people in the videos are? Please explain why come to your conclusions.

The transcriptions were analysed, and the following insights derived from the data.

Subject of the video

The first question sparked a discussion between participants about the subjects of the two videos. Several participants identified 5G and coronavirus as the main topics of the first video, though some saw it as conspiracy theory propaganda, while others saw it as a humorous take on the subject, and on the risks of scientific communication and disinformation.

"About the first video which … which intrigued me a lot, I am very curious to hear the audio, it seems a bit to me the relationship between 5G and Covid, but I do not know which might be the expressed point of view." (S1, G3, P4F)

"It looks like a video on communication no, on the communication of risks … connected to different technologies, in particular to 5G within communication. It is a bit as if it were a video, yes in certain images and certain traits humorous, on the very risks of scientific communication." (S1, G1, P5F)

"In my opinion … I say disinformation on all the various issues that … on the innovation that exists in society on all the various issues such as Covid so I say disinformation." (S1, G2, P2M)

The second video, according to many participants, was centered on sharing experiences from the perspective of coronavirus patients.

"Regarding the second video, yes, as [participant name] said it seemed to me as these people who were sharing their experience having had coronavirus and probably I think with rather severe symptoms, in the sense that continuing to show this hospital bed and so on I mean ..." (S1, G3, P5F)

Credibility assessment

Some comments about what makes communication credible, and what does not, also emerged during the first session. In particular, the scientific nature of video number one was doubted on several occasions.

"The first video seemed to me just ad hoc I mean a mixture let's say that, I hardly see it as done by a journalist in good faith, I see a narration built to support a specific thesis." (S1, G2, P4F)

"The second actually appears as a very calm institutional video, a very serious situation especially so that transmits trust in who is transmitting this information, and everyone is talking about having had Covid in very calm tones." (S1, G4, P4F)

Emotional assessment

The second question investigated participants' emotional reactions to the two videos. Feelings of manipulation, discomfort, and fear were prevalent, particularly in relation to the first video; several participants, however, felt entertained by this same video, recognizing a satirical take on conspiracy theory in it. Video number two sparked some somewhat less intense reactions, with some participants expressing it looked very serious, and even felt boring.

"If I had to say something [about emotions], I felt a manipulative feeling, for the first video only [...]." (S1, G2, P4F)

"When that badge appeared on the stage with the blackboard behind it I found that annoying, that is, this sense of wanting to contrast the scenario of the blackboard while to me he seemed like a youtuber, [...] who had a kind of flag behind him, [. ..] to shield the light, [...] everything seemed to me to be built on purpose, it bothered me as if it wanted to take me to one side rather than the other." (S1, G3, P4F)

"One [...] thing I found off-putting is that gentleman who was right in the foreground and spoke in a way I don't want to say aggressive but almost, almost as if threatening something. This image is negative for me, strongly." (S1, G2, P8M)

"The first video gave me a sense of hilarity because it seemed to me like a mockery of conspiracy theories." (S1, G4, P3F)

"The first [video] personally caused me a lot... a lot of confusion." (S1, G1, P7F)

"in the second video it gave me a lot of the idea of being a news program made up of testimonies even a bit dramatic because in any case there were people who were talking they weren't ... they didn't have a serene look but they were probably recounting a bad situation they had experienced." (S1, G3, P6F)

"Both videos stirred in me emotions of discomfort, in the sense that they did not capture my attention by making me have fun." (S1, G3, P6F)

"The second [video] [...] is more linear but perhaps also because in this current period we are very used to seeing this type of news programs [...] and now, excuse me for saying so, but almost a bit bored by the linearity." (S1, G3, P3M)

Critical assessment

Participants finally expressed their opinions on the two videos' stylistic choices, their use of images, actors and protagonists, their overall clarity, and so forth.

The first video was largely criticized for the velocity of its images and fotograms, apparently unrelated between each other. Some images, from both videos, impressed the audience: the dog with a tinfoil hat, the speaker with a blank badge, the hospital empty bed and 5G antennas.

"In the first video the fact that they opposed images of the present with older images, in black and white or low-resolution films, cartoons, made me think, as if they wanted us to notice a comparison between past and present." (S1, G4, P1M)

"I was intrigued by this 5G park, these satellite antennas, the woman who massaged her head, then obviously oh well these impressed I think everyone this rooster, this ... dog with a hat." (S1, G1, P7F)

"In addition, ehm, to the little dog [...] that hat, the 5G ... there was also a I don't know, I don't know the name, a specialist had a tag with nothing written on it, it was blank." (S1, G1, P1F)

"There are some images among the old images, cartoons, between the slightly more modern images of these antennas, of these data, so what is it about?." (S1, G3, P5F)

The discourse of importance of audio was discussed across groups, in particular in relation to the message the videos were trying to convey.

"Another difference let's say … evident is that […] the first [video] not only tries to disseminate information but also in a certain sense to capture you while the second let's say develops at a purely au … auditory level, that is, it mainly involves the listening experience etcetera." (S1, G1, P6M)

Roles and professions of the main characters were also referred to in several moments. Many participants recognized an influencer or youtuber-like figure in the first video. In the second video, a varied set of actors was identified, professions such as journalist, photo reporter and doctor were hypothesized on the basis of the characters particular attires.

"Surely the cut was more in-depth, I don't know if it was a reportage or something like that on the disease and […] had different points of view […] there was this commissioner, there was a doctor, there was the photo reporter, so people from different backgrounds let's say that had the disease." (S1, G1, P3F)

"In my opinion, the first the first is from an influencer, a youtuber, a person who has a channel, a person who has many viewers while the second I would say a journalist who certainly coordinates the discussion, it seemed to me as if it were the studio of a news program." (S1, G1, P7F)

The importance of the source was discussed, especially within group number one, with many commenting on the actor from the first video's lack of credentials.

"Why was nothing written there, who was this man, then who was he? […] That is, who are these people who communicate the data, information, do they have a name? If they don't have a name how do we look for this name?" (S1, G1, P1F)

Participants expressed their thoughts on the videos' formats and stylistic choices, overall, the sentiment was not particularly positive in regards to video number one: the rapidity and unrelated nature of the images, the framing, the main actor facial expression, were all elements that stood out to several people as especially unfavourable.

"The thing that gave me a lot to think about in the first video is that you jump from one situation to another in a very unrelated way and this without hearing the audio creates confusion but it also gives me the idea that they want to create an ad hoc narration." (S1, G2, P4F)

"This impressed me very much, [...] the speaker who seems to be the main actor, with this white background, with this framing from below, these wide eyes, seems to me as someone who is brainwashing you." (S1, G2, P4F)

Finally, some participants shared their thoughts on the videos' purposes. Some people thought the first video's purpose was dubious at times and felt a manipulative narrative.

"The first video seemed to me just ad hoc, I mean, a mixture let's say that, I hardly see it as done by a journalist in good faith, I see a narration built to support a specific thesis." (S1, G2, P4F)

4.4 Second Group Discussion

During the second discussion activity, the following question has been made:

B1. Now that you know what the videos were about, how do you feel? How the sound has changed your perceptions and interpretation of the content?
B2. Considering the content of the second video, do you think it is appropriately conveyed? Do you think the way the information was presented was effective? Would you trust what is said by the people talking?

Is COVID19 a topic on which has been said everything or you think that much still needs to be said?
B3. Considering the first video, do you find appropriate the way in which the argument is presented and the images used? Who do you think the narrator is? Do you think the narrator was trustworthy? What do you know about the topic discussed in the video?

After watching the two videos with audio, participants went over what they had discussed during the first session, with a renewed awareness of the contents of the videos. Once again, the transcriptions were analyzed, and the following insights derived from the data.

Personal assessment

Across groups, participants reflected on their personal position in regards to the topics or the images seen in the videos. The recollection of someone's experience with Covid and the impact that this had on the person's trust in the speakers in the second video was brought

forward, while in another instance some thoughts about the isolation we have all been subject to in the past year also emerged.

"Surely [...] in regards to trust, personal experience affects it, for example I can trust what they were saying in the second video [...] because I lived it, a month ago I got sick, I was struggling to breathe so I can say: I've lived it, I know what it means, I trust those people." (S2, G1, P7F)

"Perhaps because both professionally and privately we have lived this period in this way and it has become my habit by now. [...] I did not notice the fact that they were each individually in different physical places because it has by now become my daily reality and therefore what I saw I filtered with my eyes and my experience." (S2, G4, P5F)

Credibility assessment

During the second session, participants once again discussed the legitimacy of the actors portrayed in the videos, the factors that hindered their credibility, and the importance of reliable sources.

Many expressed their concerns over the credibility of the speaker of the first video, which indeed commented on the frequent ambiguity of conspiracy theorist sources but did not display or introduce some type of credentials himself. Regarding the second video instead, many agreed on the fact that the direct sharing of a personal experience was credible enough, and they hardly felt like they could doubt the authenticity of the speakers.

"In the first video the narrator was not introduced, I mean, in any case we do not know who this man is ... so yes, we can trust what he says because on the basis of our previous knowledge we can perhaps confirm what he says, that is that there is no correspondence between 5G and the coronavirus but ... in fact [...] I do not know who he is." (S2, G1, P1F)

"In the second video the people seem a little more reliable to me because they simply speak of an experience lived in first person, [...] they simply speak from experience so I can deduce that they are reliable, [...] also because they are not conveying any type of information that is so different from what we usually hear." (S2, G3, P5F)

"Certainly the fact that there is the voice of those who lived the experience makes the second video very direct and very commendable and therefore it is even more able to involve the people who listen to it because we are all psychologically led to wanting to know about the other." (S2, G4, P5F)

"let's say that.. eh … granting him [speaker of the first video] my trust is somewhat limited by the fact that there is no name, that there is not even a brief account of himself, of what skills he has." (S2, G4, P1M)

Component assessment

Analysing the videos content and components, reflections on the videos audio, images, style and purpose emerged.

Participants agreed on the importance of audio, some viewed the videos as less chaotic due to the mere presence of an audio track, while some others thought the sound enhanced their emotional response to the images and topic of the videos.

"About the first video […] it even seemed to me that there were fewer images than the first time I saw it because I was focused on what it was saying." (S2, G1, P7F)

"The second, the second journalistic reportage […] it was much more distressing than what […] the images had suggested to me […] hearing their voice I changed the way of approaching that reportage […] I am even more moved now compared to before." (S2, G4, P3F)

Even with the audio track present, some people still disliked the first video framing and image choice and honestly criticized this.

"I continue to find, let's say, the person who speaks with a white screen, wide eyes and a low angle framing, not really a, let's say positive figure." (S2, G2, P4F)

"The images without audio evoked exactly contrary contents to those that were later revealed with the audio and, however, for me this does not mean that we have misinterpreted it, it means that those images without an explicit explanation had conveyed contradictory images [ideas]." (S2, G2, P4F)

Furthermore, a few participants objected to the choice of images for the second video as well, suggesting that these were unnecessary to the narrative's scope.

"In the second for me it could very well be just audio, I mean, the images have no real value, even if even if they had not put those two histogram images or hospital beds, it fundamentally would not have changed anything." (S2, G1, P6M)

The audio track surprised a lot of the participants because of the shift in their perception of the videos' subject, particularly in regards to the first video.

"Well that is a twist because … the first video is not of a conspiracy theorist against 5G network and its link to coronavirus, its direct connection to the coronavirus, but it is basically the opposite." (S2, G3, P6F)

Discussing purposes and goals of the videos, the first video was once again felt as more calculated rather than genuine, but perhaps directed at conspiracy theorists instead of the general public, while the second video, was instead thought to be an informative report aimed at spreading awareness on the coronavirus disease.

"So, from the first video I had a feeling, I don't know if I'm wrong, I don't know if it's relatable, I mean, it's a … It's almost as if it is looking to convince a group of people that the coronavirus is not given by 5G." (S2, G3, P2M)

"For the second, yes it is a sad video, if we want, but it is aimed at, making information perhaps within a news program to give testimonies of people who have been through this situation, and therefore alarm citizens, in my opinion, to pay attention and behave well, so that it does not happen to them too." (S2, G3, P1M)

The duration of video number one was finally criticised as it was deemed unsuitable for the communication of scientific information.

"I am under the impression that the time of the video is not such as to allow a clear scientific communication on the subject, with bibliographic references and very precise explanations, so the goal is to capture attention, capture attention is done with accompanying images as in all videos." (S2, G3, P1M)

Critical assessment

Participants across groups made it very clear when they did not agree with the way the videos were framed, when the rapidity in the sequence of images and scenes was a problem or they did not agree with the speaker's attitude. Concerns also emerged about how the issues treated in the videos were not properly addressed.

"Yes I mean let's say that, [the first video] is a little aggressive, a little anxious so these images that […] the perception without audio was much more […] of confusion and velocity while instead with the audio it was a little decreased but it was still partly maintained." (S2, G4, P2F)

"This kind of talking stigmatizing right, assuming that those who listen […] they are stupid, I find it terrible and very widespread, […] the end of debate." (S2, G3, P4F)

"I noticed that there was neither an incipit nor a sequel [in the second video], I mean, there was no introduction in which perhaps it was explained what coronavirus is [...] nor the precautions to be taken, it was simply a conveying what these people have experienced through that platform." (S2, G1, P7F)

Feedback

Participants had many suggestions on how the videos could have been made better, but also had suggestions and comments about the shortcomings of scientific communication on one side and governmental communication practice within Italian society.

"Also in the second video in my opinion, clearly we emphasize that they are people who have been sick and who have recovered etcetera [...] but it is all based on one type [...] of emotions [...] in reality there is a very poor communication because two cases do not constitute generality." (S2, G2, P4F)

"Communication has changed a lot and there is always a lot of everything but above all in this moment of emergency we are overwhelmed with this flood of information [...] I mean, there is no central authority that tells us this is right, this it is wrong, there are many references and even the authorities fight continuously [...] and the situation is really ... saddening even for us who work with this because [...] we always hope that those from the upper floors may talk, that is, make a simple mental plan on how to act in these situations but in reality no [...]." (S2, G1, P3F)

"Even the messages themselves that arrive from the so-called experts, it is not a given that they are a safe source, especially since it has been said that even the experts have different opinions from each other." (S2, G2, P8M)

"I think that [...] unfortunately the most accredited sources are, at this moment, social networks, and I stress unfortunately, because there is a mass phenomenon that is, let's say, detaches itself from reality to remain in this magical world that is the social network [...] so any information, whether it is a joke, health information or political information, passes through channels which often are too informal." (S2, G2, P3M)

Emotional assessment

The emotional response of participants came up once again during the second part of the discussion. This time, feelings of frustration and confusion were mainly mentioned.

"While the second, the second journalistic reportage [...] it was much more distressing than what [...] the images had suggested to me [...] hearing their voice I changed the way of approaching that reportage [...] I am even more moved now compared to before." (S2, G4, P3F)

"I still have the feeling of slight anxiety and confusion that the video sent me without audio, that's ahem although the perception was totally different [...] the feeling of anxiety remained a little bit." (S2, G4, P2F)

"The first [video] strengthened in me this feeling of extreme annoyance, [...] actually [the audio] seemed to reverse what we could expect, but in my opinion it changes little because it is really a type of communication that I find extremely annoying." (S2, G3, P4F)

"My feeling, my sensation more than anything else is tiredness that in this whole situation, whether it is Covid, whether it is 5G, everyone always has to say where they stand and in the end you never know where the truth is, [...] because there can always be some kind of agenda behind." (S2, G2, P1F)

4.5 News checking usage and consideration

During the news checking activity, participants were asked about their source of information:

"The first video was about the relationship between 5G and COVID19.
C1. Where would you go to double check and find more information about this topic?"

And 5 minutes has been given to look into a fact-checking website:

"FACT CHECKING PLATFORMS
https://www.butac.it/"

Groups discussed their approach to fact checking and many participants shared the best practices they had learned and gotten used to implementing especially during recent times.

Participants cited institutions, news programs and regulatory bodies for communication as generally trusted sources for news. Some reflected on their own responsibility when sharing news, illustrating how they resort to scientific social networking sites such as ResearchGate to verify the veracity of the information they are sharing.

Indeed, participants commented on how difficult news checking can be for the general public, and how rather few citizens possess the skills to successfully navigate the web and use it to fact check all information they may come across.

4.6 Recommendation

During the final phase of the workshop several comments on group discussions and recommendations on how to improve science communication emerged. It follows a brief overview of the recommendations:

- The source must be authoritative and to be so, references on who is speaking must be present "*you need to know who is speaking, the container can say all or nothing*", or at least that this person introduce himself or herself;
- You have to use several different sources to get information;
- To get to check the news, many needs more than one input on that specific piece of news;
- Length and speed of the video must be appropriate: "*content so short, so fast and so chaotic is not functional to adequately convey scientific information*"
- Avoid a saturation of information and a general sense of discomfort, boredom, annoyance, of clearly low credibility;
- More than the politics of alarmism, scientific communication, in particular on health, should be based more on “the responsibility as citizens to take an interest in the health of others so [...] given that there is a global pandemic we must change mentality and not focus only on Italian news but broaden the vision and also think about other parts of the world”;
- Need for objective facts and a distance from what are the opinions that are reported;
- Need for debates between the parties involved within the same discussion "many have observed that virologists talking about COVID always speak for themselves and do not have a contradictory at the same time, in the same container so many of us stressed that we represent the two faces of the same medal";
- It is important to take into account the context and previous experience of the communication target.

4.7 Problems and limitations

From a meeting between facilitators that immediately followed the workshop emerged that for some groups it would have been necessary to have more time to deepen the arguments. It has also been suggested that the groups could be less heterogeneous, to avoid that one expert, when revealed, prevents, with his mere presence, the full expressiveness of potentially controversial opinions.

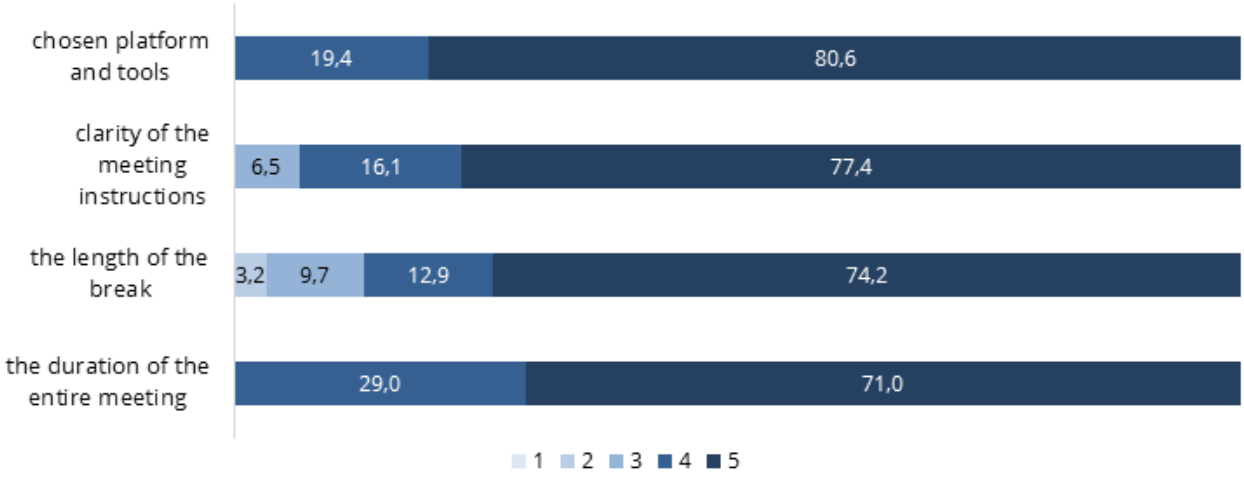
4.8 Participants' evaluation questionnaire

At the end of the Workshop, evaluation questionnaires were administered to the participants. The response was mostly immediate from almost all the participants.

LimeSurvey was used to put the questionnaire online and the link to it was sent to Zoom's chat. We recommend giving them 5 minutes to answer the questionnaire, or, alternatively, returning the link to the questionnaire in the thank you email, with the certificate of participation attached.

The evaluation questionnaire begins by asking for an evaluation of the organizational aspects.

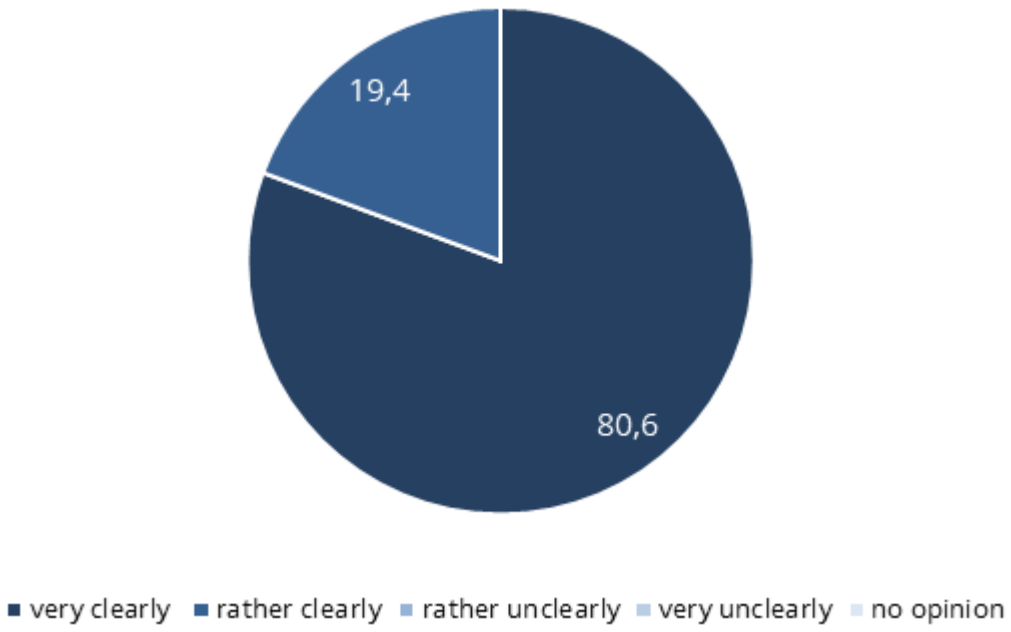
Figure 9: Italy, how do you evaluate the organization of the workshop in terms of: (Please put an X in the selected field, 1 means the lowest and 5 the highest grade) (n: 31)



The participants were generally satisfied with the organization of the workshop, to which they mostly gave top marks regarding the chosen platform and the duration of the entire meeting. More than 9 out of 10 (93,5%) expressed a positive evaluation about the clarity of the meeting, while the remaining (6,5%) gave a neutral mark on this topic.

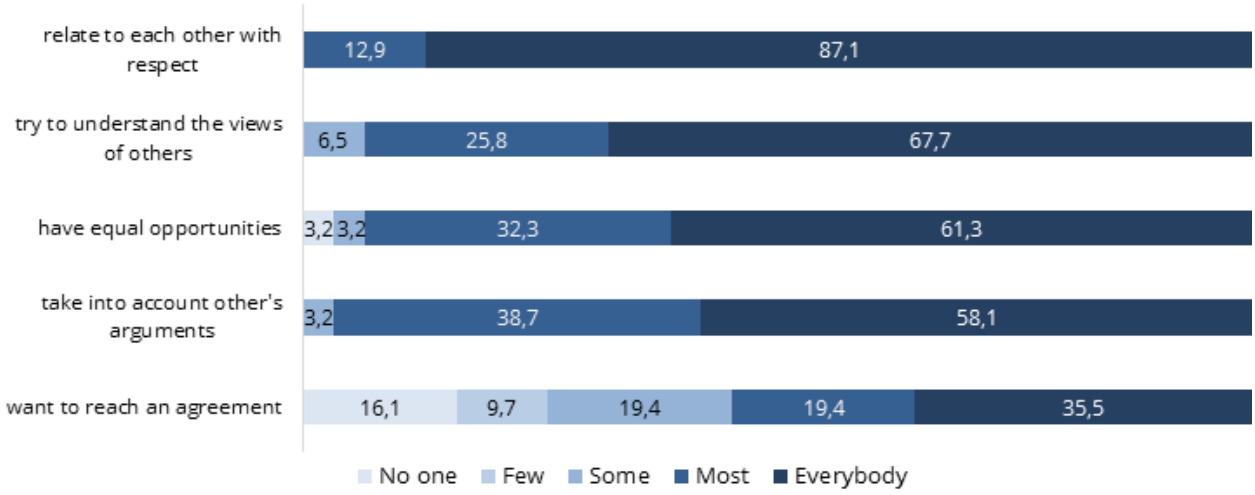
Not the entirety of the sample was totally satisfied with the length of the break of the meeting, but almost 9 out of 10 expressed positive to very positive opinions also regarding this aspect.

Figure 10: Italy, in your opinion, the discussion rules were presented: (n: 25)



Participants also expressed a positive evaluation regarding the clarity of the discussion rules and the way in which they were presented. Most of them, 4 out of 5, found the discussion rules presented very clearly (80,6%), while the remaining (19,4%) considered them presented rather clearly.

Figure 11: Italy, how can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), positive behaviour (n: 31).



Participants were also asked to comment on how they perceived the behaviour of others. As for the positive behaviours, almost everyone agrees that the other participants related to each other with respect. Respondents mostly agreed that most or everybody took into account other people's arguments and tried to understand the views of others, while a small part believed that this last attitude was exclusively portrayed by few of the participants (6,5%).

Instead, more discordant opinions can be noted regarding the belief that the participants had equal opportunities to influence the course of the discussion, in which most of the answers are oriented between "most" (32,3%) and "everybody" (61,3%) had equal opportunities to influence the course of the discussion (93,6%). The remaining are equally divided by "some" and "no one".

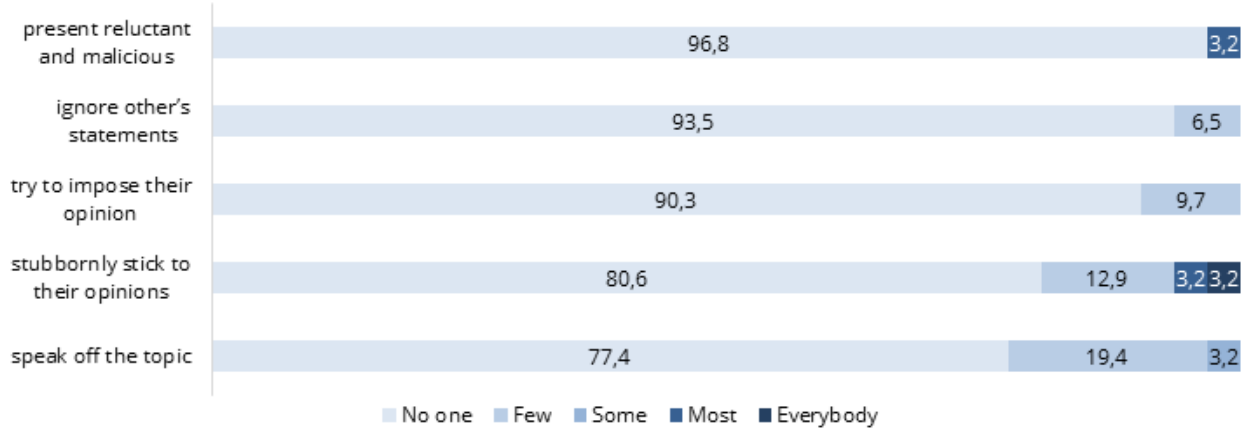
Participants expressed themselves on how many people inside their group had taken into account other participants' arguments and the grand majority of the respondent shared that everybody (58,1%) or at least most of them (38,7%) did maintain this behaviour. Just a small part (3,2%) reveal that some have taken into account other people's arguments.

The most heterogeneous opinions were expressed when was asked if the group wanted to reach an agreement: 35,5% declared that everybody wanted this, 19,4% said that most of them had this attitude, the same amount declared that this was something that just some of them seek, while 9,7% said that just few behaved as such and the remaining 16,1% agreed that no one wanted to reach an agreement.

This, considered together with the other responses on relating with respect and taking into consideration the arguments of others, suggests that the discussion was positively evaluated and that most of the participants expressed their ideas with mutual listening, without trying to impose their opinion.

In fact, as can be seen in the figure below, only 9,7% believe that few have tried to impose their opinion, while the remaining 90,3% have not seen this attitude from anyone. Similar response rates were observed with regard to the perception, within the group, of an attitude of ignoring others statements (no one 93,5%) and presenting reluctant and malicious towards each other (96,8%).

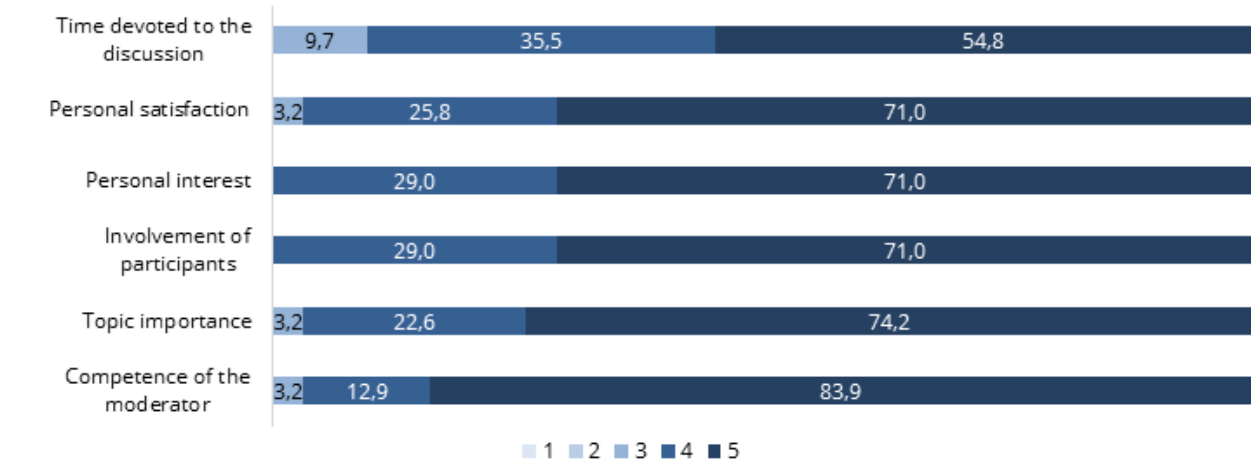
Figure 12: Italy, how can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), negative behaviour (n: 31).



More discordant opinions can be noted regarding the belief that the participants stubbornly stick to their opinions, in which most of the answers are oriented between "no one" (80,6%) and "few" (12,9%). The remaining are equally divided by “some” and “most”.

Least, almost 8 out of 10 (77,4%) believed that no one spoke off topic, while the remaining were divided between who declared that few (19,4%) and some (3,2%) had this attitude.

Figure 13: Italy, how do you evaluate the group discussion on video without audio on COVID-19 in terms of: (n: 31)

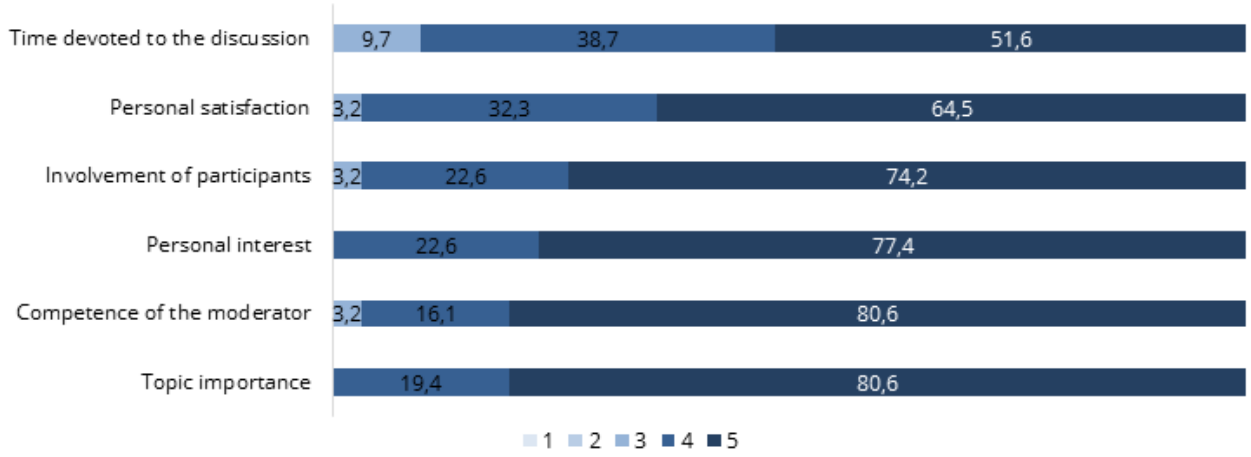


Regarding the first discussion activity, the maximum score was assigned by more than 8 out of 10 at the skills of the moderator of the group. A small fraction (12,9%) of the respondents voted 4 out of 5, a positive vote but not the highest, and just a few (3,2%) remained neutral.

More than 7 out of 10 also assigned the maximum to the topic importance, the personal interest and satisfaction towards the discussion and the involvement of the participants.

A small fraction of the respondents voted 3 out of 5, a neutral vote for the amount of time devoted to the discussion on this topic, while 35,5% voted 4 and more than half of the participants (54,8%) were satisfied with this aspect too.

Figure 14: Italy, how do you evaluate the group discussion on video with audio on COVID-19 in terms of: (n: 31)



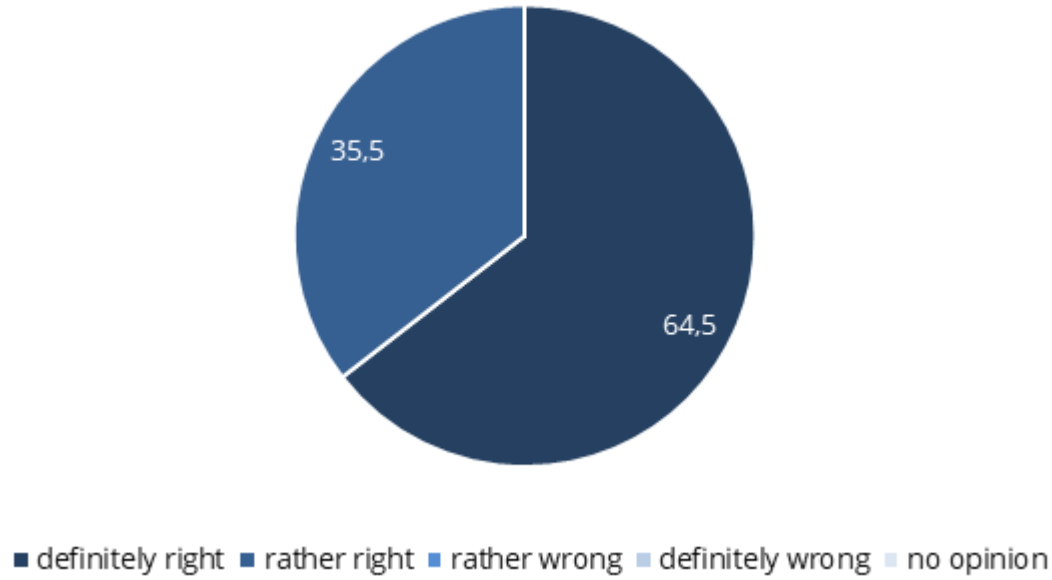
Evaluating the answers of the second discussion, it is interesting to notice that there are some variations from the first discussion.

The votes regarding the amount of time devoted to the discussion on this topic remain similar, with a little more people who voted 4 instead of 5. Such decrease is notable also in the personal satisfaction of the participants and the competence of the moderator, although the personal interest has increased.

The participants who voted the highest on the involvement increased but the remains were more divided with 22,6% who declared 4 and a new 3,2% who chose 3.

Topic importance has increased with 4 out of 5 who assigned the highest rank and the remaining 19,4% awarded the second-best grade.

Figure 15: Italy, in your opinion, are such meetings the right or the wrong way to collect opinions on topics related to the ways of communicating the knowledge provided by scientists? (n: 31)



Most of the respondents (64,5%) believe that such meetings are definitely the right way, and the other 35,5% think that is a rather right way to collect opinions on topics related to the ways of communicating the knowledge provided by scientists.

The participants were 32 citizens (10 males and 21 females) with an age range of 48 years, the oldest was born in 1952, the youngest in 2000.

Half of the participants left a comment:

- Rise to Sara Fattori!! Also, I would recommend taking some time off the section without audio, and then giving more time to the one with audio.
- Compliments! Very interesting and I learned things that I could not have learned in other contexts. A pleasant chat and exchange of thoughts, reflections, points of view. An excellent method of interchange is the division into rooms, which allowed everyone to be able to speak more freely and gave everyone the opportunity to express themselves (more time available for each and greater freedom of expression being just a few). Thanks!
- I think it would also be necessary to deepen with further meetings ... although it was not in the spirit of this workshop ... to better refine attention on the subject and why not communicate it to others
- The whole process of proposal and comparison, all very smooth and engaging, left me the desire to deepen, so I would say that the dialogue between the various

participants was very interesting and well conducted. I'm curious to know what emerged from the evaluation of you experts. Thanks

- It was very interesting to hear the various opinions. Unfortunately, I had initial connection problems and therefore I did not actively participate. I had very little knowledge of the relationship between COVID and 5g.
- Interesting and inspiring experience. Thanks for involving me.
- I found the approach and the way in which the participants were involved very interesting, everyone is encouraged to express their opinion in complete freedom. All this is very stimulating because one expresses one's own vision on the treated topic and enrichment occurs in the comparison also for the others ..... it is not said that satisfactory answers are always found, however, it is possible to arrive at some very interesting shared points for the purposes that one wants to achieve. Too bad that the time of a video call is too short to reach in depth greater results. Thanks again to you!
- I found it a source of satisfaction to be able to provide a personal opinion on the proposed topics, but I also found it very interesting to hear the opinions of others.
- Interesting, but above all very formative, thanks to the comparison between the different members, who live different experiences and situations.
- Very interesting; a checklist of more targeted questions could be useful after an initial discussion phase.
- It is not irrelevant how the sample of participants was selected. A presentation on the project would also have been interesting, just to increase engagement.
- Great work by the moderators (in my opinion) and great work by Sara Fattori in the ''behind the scenes'' of the event.

4.9 Conclusions emerging from the Italian SciCom workshop

In general, the participants stressed the diversity of emotional tension between the two videos. They recognized that the former, with a rhythm of a music video clip, presented itself in a pressing way, exerting considerable pressure from an emotional point of view. The second video, with a slower pace and with more understandable contents, provided more information for understanding the topics covered and, in some ways, greater uniformity was noted between what was treated in the pre-video discussion and in the second part of the Workshop.

On several occasions, participants talk about a crisis of confidence in science. Indeed, one person argues that the very presence of virologists and scientists in the public debate has

given the illusion to people that they can also participate, eventually generating clashes of supporters, more typical of football matches than of scientific debates. Some participants acknowledge they do not have the basic knowledge to join these debates, let alone understand the details about scientific controversies and divergences (*group 2*). One participant suggests the potentially positive role that scientific social networks like ResearchGate can play, especially in relation with people with a sufficient educational background to be able to access primary academic sources.

The open clash between scientists, and the divergent opinions, suggestions, recommendations, and prohibitions they and health and political authorities have given during the pandemic, have unsettled the participants in the past months. From science, they expect clear indications and not fiery debates that try to discredit the other. Their view of science continues to be based in the deficit model.

The excess of knowledge sources and the difficulty in knowing how to evaluate their reliability are also cited on several occasions (*group 2*).

In this excess, there is a connected issue associated with the role of contrasting sources, of speakers' labels and qualifications and the legitimacy grounds to be recognized as an expert with a say in the debate. Some participants reject debates based on opinions even when these opinions proceed from scientists: they'd rather prefer access to objective, easy-to-reference data to make up their own mind independently.

The constant changes in health opinions and recommendations have ended up bringing both politicians and scientists into a similar disrepute (*group 3*). Only a couple of participants recognize as normal that science is made of uncertainty (*group 1*).

"I personally do not trust the concept of authority in science much, and consequently it is not like just because a person is a virologist, a biologist or someone who worked [...] then I must trust what he says. I only have to trust what he says if he brings me data that can actually be valid" (S2 G2 P9F).

"The experts [...] they do not rely on any communicator, they speak for themselves and therefore bring a debate into the public scenario that is scientific, and this gives the illusion to the spectators to be able to participate in it but in reality this is not true, there are no tools, we are not virologists, everyone's an expert on something specific, it does not mean that we are not competent, that we are not graduates, it means that if we are not like this within the topic, we cannot participate, otherwise it becomes like a supporter fanbase" (S2 G2 P4F).

"In my opinion the scientific communicator [...], all journalists also, [...] must make well clear the difference between opinions and facts. What people can trust are facts, what people can talk about and give their opinion on, those are opinions" (S2 G2 P9F).

"In the end, there are so many sources you don't even know who to believe anymore. A little bit out of ignorance, a little bit because you are taken off guard" (S2 G2 P1F).

It is widely accepted among participants that we are exposed to different, and differently powerful sources of misinformation. This is, many say, especially problematic in a pandemic like this one because almost all confess a feeling of fatigue, of excess of information and confusion, as well as a growing disinterest. The combination of exposure, tiredness and confusion produces disorientation and bewilderment.

Some participants point out that emotions are important not only in those who receive the communication, but also in those who make it (*group 2*). It was widely perceived that the speaker of the first video was "frustrated", "exasperated", "tired" etc...

It is important to notice that several participants argue that it is not correct to use the same register as conspiracists or fake news (*group 2*, *group 3*). The idea of facing them on the same ground may be counterproductive, especially because many would be repulsed by this type of aggressive, hardly supported by evidence, communication.

Nonetheless, some participants suggest that communication styles such as "youtuber," "rant", or the one adopted by an Italian communicator called Barbascura, who perform a rapid and pressing scientific communication, with many inputs, may be successful (*group 4*).

In this respect, some have argued that the success depends very much on the age of the audience. For instance, it is argued that the pressing and rapid style of the first video is good among the younger generation but that it drives away and irritates the older ones. (*group 4*).

"This is not scientific information because it does not go into details and does not give much information at all, so it is simply one of those communications that respond to fake news in the same way as fake news are told, without going into too much specifics" (S2 G3 P1M).

"It is as if between the speed with which this man spoke and the repetitiveness of the images, this velocity did not allow the listener to evaluate and consider the meaning of the message transmitted" (S1 G4 P5F).

"I [...] think [...] this way of representing things is too aggressive even if the topic is serious and therefore not so simple and superficial; I understand that this modality, both in the use of images but also in speech, are very dependent on what is the fashion of the moment and on what is the

educational modality towards today's young people and today's society. I find it hard to follow a video of this type" (S2 G4 P5F).

Eventually, a *conundrum* emerges: in the presence of too many sources, it is very difficult to know how to choose, and very expensive, too. Even people with high education have difficulties in discerning the reliability of the message and of the source. This has generated a sense of dismay, for which no participant has a real solution that may be valid across ages, places and educational background.

"It [...] occurred to me that all of us unknowingly are communication professionals. [...] Each of us, through the various social networks, often publishes stories so to me this is a way of communicating that we can manage in a misleading way, for example we can build that in such a way as to give a certain message rather than another" (S1 G2 P3M).

"I try to avoid sharing when I am not sure, this is little but sure. And then, in any case, look for the coin from several sides, the reverse of the coin, on both sides and compare, ask for information from other people and when it is not notion of certain situations it is better to avoid putting something wrong than putting it to create more confusion" (S2 G2 P3M).

5 The Dutch Citizen SciCom Workshop

The Dutch workshop was organized and facilitated by Erasmus University Rotterdam (EUR) within an online environment using the video conferencing platform Zoom. The workshop was run effectively, had no major technical issues, and led to engaging discussions. Together with three moderators, a host, a technical assistant and 13 Dutch citizens, interesting insights on effective scientific communication were gathered.

Most prominently, recommendations for engaging, trustworthy, and credible, scientific communication emerged. Together with the feedback of a critical review on fact checking websites, information has been collected to provide references to create a useful online fact checking web tool.

The output gathered in the Netherlands consists of more than 4 hours of recordings and transcriptions and evaluation questionnaires. The transcriptions have been analyzed using constructivist grounded theory which led to four main themes for the first discussions, and six main themes for the second discussions.

5.1 Organization of the Workshop

The organization process of the Dutch workshop ran smoothly. After reaching out to Dutch citizens on numerous occasions using different channels, **17** participants filled out the registration and consent form. Registered participants obtained a post-workshop reminder through a small incentive (chocolate bar) with a note, as well as an email regarding the details of the workshop (platform, URL, time, etc.). Within this email, participants were invited to show up half an hour before the workshop to give them an opportunity to raise any questions or concerns they might have had. Inviting participants to join the workshop earlier, encouraged participants to be on time and it allowed us as organizers to help with any technological issues. The number of participants that actually participated on the day of the workshop, Saturday the 12th of December at 10 o'clock, was **13** Dutch citizens. This day and time seemed to be the best as most people work on Monday to Friday. Before the workshop, groups were made based on gender differences and age differences, keeping in mind to not put moderators or participants who knew each other within the same group. With four people missing, the groups were rearranged quickly during the introduction to remain on schedule, keeping the previously mentioned criteria of groups in mind. The following table includes the Dutch workshop agenda.

Table 12: Workshop Agenda of the Dutch Workshop

TRESCA WORKSHOP AGENDA	
10:00 – 10:10	Introduction and presentation
10:10 – 10:50	Video without sound and group discussion (**Zoom** breakout rooms)
10:50 – 11:05	Break
11:05 – 11:45	Video with sound and group discussion (**Zoom** breakout rooms)
11:45 – 11:50	Website news checking
11:50 – 12:20	Recommendations
12:20 – 12:30	Questionnaire and conclusion

Within the Dutch workshop, there was a team of four moderators, one host, and one technical assistant present. Due to the missing participants, three moderators were sufficient as participants could be split into three instead of four groups as it was predetermined that each group should consist of at least four participants. Hence, the thirteen participants were split up in two groups of 4 and one of 5 participants. Overall, the schedule of the agenda was followed quite well, only the fact-checking and recommendations part deviated from its original schedule. These parts became an overlapping and organic discussion. According to the evaluation questionnaire, participants considered the time spent to be appropriate overall.

5.1.1 The Zoom conferencing platform

Due to COVID-19, the workshop took place using the online platform Zoom. The platform chosen allows for a host to share their screen, through which the presentation and materials were shared, and to create breakout sessions through which participants could be divided into smaller groups to create more meaningful discussions. To guarantee a smooth running of the workshop, a technical assistant was present. The technical assistant was able to help any participant or moderator who experienced technical difficulties. Fortunately, no technical difficulties occurred other than rearranging the breakout rooms

due to four missing participants.

The organizers and the technical assistant were present half an hour before the start of the workshop and any participant who was unfamiliar with Zoom was able to tune in earlier and ask any questions regarding the platform. This seemed helpful, as two older participants and some participants unfamiliar with the platform Zoom, needed this time to get settled in and ask some questions regarding the use of the platform.

5.1.2 Recruitment of participants

For the Dutch workshop, we used different channels to approach potential participants, such as social media (LinkedIn, Twitter and Facebook) and different methods such as snowball sampling, in which registered participants invited others, as well as convenience sampling, using Dutch colleagues and their networks. An advertisement was created that included all the information and registration URL to easily spread the details on different channels. Through this, we engaged in a number of recruitment strategies. We carefully considered the time and day to maximize participation.

However, it turned out to be difficult to commit Dutch citizens to participate in an online workshop and the target number of participants of 30 to 35 participants was not reached, despite our best efforts and usage of numerous channels. Possible reasons for this issue derive from the global pandemic. Participants were approached mostly through online channels, losing its personal touch. Citizens seemed less willing to participate through an online platform, possibly in connection with other reasons such as the time commitment. The Netherlands is a highly digitalized country and many people, including people from the older generation, spent much more time online during the pandemic. Through this, there is a general fatigue with online and digital media causing loss of engagement within our project.

The selection criteria for participants were that they had to be at least 18 years old, they are currently living in the Netherlands and they speak Dutch fluently. The registration URL led to an online survey on Qualtrics, in which both the registration form as well as the consent form were located. A total of 17 citizens filled out both forms, after which 13 people showed up to the actual workshop, despite all 17 retrieving a small incentive (chocolate bar) beforehand. For the Netherlands, no geographic areas were specified as the Netherlands is a rather homogenous and overall very urbanized society.

However, the city participants were located in was taken into consideration when forming the different discussion groups. Besides geographical location, groups were created taking

into account gender, whether participants (possibly) knew each other, and age to create as much diversity within groups as possible.

Table 13: Theoretical and Workshop sample by gender, age, educational level, nationality and disability, in numbers and percentage.

Theoretical sample for WS n: 13; (%)		Workshop sample n: 13; (%)
Gender	**n; (%)**	**n; (%)**
Female	7; 50.3	6; 46.2
Male	6; 49.7	7; 53.8
Age ranges		
18-34	4; 30.8	6; 46.1
35-54	4; 32.3	1; 7.8
55 or >	5; 36.8	6; 46.1
Educational level		
Primary education + Lower secondary	4; 27.9	0; 0
Upper Secondary school	5; 38.1	1; 7.7
University degree	4; 32.5	12; 92.3
Nationality		
Dutch	12; 93.8	11; 84.6
Non-Dutch or mixed	1; 6.2	2; 15.4
Disability		
Disability		1; 6.2
No disability		12; 93.8

5.1.3 Recruitment and training of the moderators

Using the network of EUR, colleagues working at Erasmus University Rotterdam who are native Dutch speakers were selected based on competency and interest as moderators. Within two different meetings, of which the first was mainly informative and the second was a full run through of the presentation and workshop, the moderators gained insights about the project and its goals. A short manual was created to help moderators achieve the goals of the workshop. Within this manual, the questions for participants were stated, moderator guidelines were introduced, and technical reminders and issues were tackled.

5.1.4 Limitations and sample composition

For the Dutch workshop, some issues emerged throughout the process. The target sample of 30-35 participants was not reached and the workshop sample fell short of the variety we envisioned in the theoretical sample. The education of the workshop sample was unevenly distributed, however, age and gender were very similar to the theoretical sample. Except for one participant, all had a university degree. Furthermore, despite efforts of creating a comfortable environment, using an online platform comes along with its difficulties such as speaking in turns rather than an organic conversation flow. Due to COVID-19, using an online platform such as Zoom was necessary, and as such some issues and difficulties were unavoidable.

5.1.5 Usefulness of materials developed for the workshop

The materials created for the workshop were considered highly adequate and effective as these helped tackle the issues that resulted from COVID-19. Having online materials, such as an online registration and consent form, moderator guidelines, and an evaluation questionnaire, helped build an effective online workshop. The presentation helped illustrate the narrative, Dutch subtitles for the videos created a better understanding, and the evaluation questionnaire led to further data that can be analyzed and used for incorporating participant feedback.

5.2 The Agenda of the Dutch Workshop

The Dutch workshop consisted of several main sessions and break-out rooms. All outputs derive from the recordings and the transcriptions of these sessions. The following table gives an overview of the workshop activities and its recordings.

Table 14: Registrations and transcription time – Dutch Workshop

Registrations				Transcription time
Activities	Start at	End at	File name	Transcribed minutes
Introduction	00:00	18:48	BeforeBreakOutRooms.mp4	00:18:48
Group 1 Anouk	00:00	30:04	Anouk_Sessie1.mp4	00:30:04
Group 1 Tessa	00:00	30:48	Tessa_Sessie1.mp4	00:30:48
Group 1 Laura	00:00	29:26	Laura_Sessie1.mp4	00:29:26
After Break	00:00	06:48	NaPauze.mp4	00:06:48
Group 2 Anouk	00:00	33:05	Anouk_Sessie2.mp4	00:33:05
Group 2 Tessa	00:00	33:46	Tessa_Sessie2.mp4	00:33:46
Group 2 Laura	00:00	33:56	Laura_Sessie2.mp4	00:33:56
Recommendations	00:00	40:17	NaBreakOutRooms.mp4	00:40:17
Total				04:16:59

The following tables represent the created groups for the Dutch workshop.

Table 15: Dutch workshop, First group

Group 1		
Gender	**Age**	**Degree**
Male	55>	University degree
Male	55>	University degree
Female	18-34	University degree
Female	18-34	University degree

Table 16: Dutch workshop, Second group

Group 2		
Gender	**Age**	**Degree**
Male	18-34	University degree
Male	35-54	University degree
Female	55>	University degree
Female	18-34	University degree

Table 17: Dutch workshop, Third group

Group 3		
Gender	**Age**	**Degree**
Male	18-34	University degree
Male	55>	University degree
Male	55>	Upper secondary school
Female	55>	University degree
Female	18-34	University degree

5.3 First Group Discussion

During the first discussion activity, the following questions were used in each break out session to guide the discussion:

Thinking about the videos you have just seen,
A1. What do you think was the content of each of them?
A2. how would you describe the emotions that each of them made you feel?
A3. What are the images in each video that triggered your curiosity or that you remember better?
A4. Do you think the videos are about science communication or not? Who do you think the people in the videos are? Please explain why come to your conclusions.

Using a constructivist grounded theory approach to coding, the transcriptions were analyzed to let new insights derive from the data. Through this, four main themes emerged for the first group discussions which were built upon twenty different axial codes. Firstly, subjects that participants detected within the videos without audio were found. Secondly, participants assessed the credibility of the videos through which both credible appearances and doubtful aspects emerged. Third, an emotional assessment was found in which participants determined both what they were feeling through these videos as well as what possible feelings these videos evoked or tried to evoke. Fourth, participants were found to be very critical in terms of the format, style, imagery, and purpose of the videos.

Subjects

This first theme was built upon the answers of the participants when questioning what they thought the videos (without audio) were about. This theme is therefore one that is very focused and specific. Participants mainly found there to be a relationship between 5G and COVID-19, but if this relationship was positive or negative still seemed to be unclear for most and a need for audio was expressed. Similarly, participants agreed that sharing experiences was also an important topic, but exactly who was sharing these experiences was yet to be clarified. Some participants stated that these were citizens sharing their experiences, whilst others believed employees were sharing their experiences. Important information (e.g. the direction of the relationship between 5G and corona: positive or negative) that could lead to a certain interpretation was not conveyed without audio.

“The first video, which I saw, seemed to be at least about 5G and I think a link was also made there with radiation and COVID. And the second video, which I could deduce, was about COVID and the impact of COVID because they talked to people who had it.” (S1, G1, P3F).

Credibility assessment

The theme credibility assessment arose from aspects participants highlighted that made a video either appear credible or that made participants doubt the video's credibility. Interestingly, when assessing credibility most participants focused on the people who were present in the video (role assessment), as well as where the videos came from (source assessment). These aspects were both highlighted when participants stated they thought it was credible, as well as when they were very doubtful. Illustrating the importance of this aspects, is the following quotation:

"With regard to professionalism, in the second I remarked that- One of the speakers was wearing such a lab coat, so that immediately shows that someone understands the business. And also the subtitles that were there with which person it is, is it someone who works in the hospital or the people who have had COVID? And that is also a news channel, so that also gives me a little more credibility." (S1, G1, P1M)

This participant showed how he deemed the persons within the video to be credible, either through the clothing that they were wearing or the source displayed. Similarly, this was the exact reason another participant was doubting the credibility of the video:

"In the second video, without looking again at who they were, I immediately thought, oh, but now you can choose who you interview, that's nice and easy. You can very well start directing your interview now if you have chosen your interview candidates yourself instead of people from the street, as [participant's name] says." (S1, G2, P3F)

This participant exemplified how he believed that even though it came from a certain source or certain people were chosen, that it is important to take these aspects into account when it comes to credibility, as all of these aspects can be chosen for a reason. The doubting of the roles of people in the videos, as well as the source, seemed to be a recurring aspect when assessing credibility.

Some style and format critiques, specifically regarding credibility, were also pointed out by the participants. One participant would suggest that a video should be a lot more coherent to make it appear more credible. Another stated how he thought it might not be credible as it looked like the video had a logo he recognized (NBC), but it was in fact a different logo. This illustrated that form, style, but also source are important aspects contributing to credibility. The importance of source was illustrated by one participant as follows:

"How quickly we believe things, that is often due to the name, so what credibility does a news brand have, or- Even though the Dutch media is often disdainful about a certain type of brand,

oh, they always make things like that and another, who is not. So if they make a video, it is very credible and then- You can of course use that very well for your message, because you know that people believe you. So I think it's interesting to also look at who produced the video." (S1, G1, P1M)

Overall, within the credibility assessment, aspects arose that on the one hand contributed to a credible appearance and that on the other hand made participants doubt credibility. Participants seemed to be curious about the audio to either confirm or refute their thoughts on the credibility of the videos.

Emotional assessment

The theme of emotional assessment derived from the way participants were feeling or what they thought the video was supposed to make them feel or what type of feeling the video was trying to provoke in their opinion. Overall, there seemed to be a wide range of emotions deriving from different notions.

First off, a certain aversion towards the videos was felt by a number of participants. This aversion is usually derived from the style in which the videos were created. Participants felt as if it was mostly a one-sided story or that it seemed to be manipulative. Similar to having this aversion to the videos because of its style, another participant noted how the style produced a sense of frustration for him as he didn't understand the presenter, whilst other participants felt that the style was chaos producing. One participant illustrates:

"What exactly is being said is a bit unclear. A kind of unrest is created on the basis of the images that all pass by. That is actually my opinion." (S1, G3, P3M)

Multiple participants referred to how they felt it was all very "over" dramatized and this was often closely related to the notion that the videos had an 'American' style. The words "sensational" and "emotional" were used multiple times. One participant stated the following:

"Occasionally with that traditional news media, especially with American traditional news media, I sometimes find it just a little bit very dramatic and sensational and really emphasize how dramatic and bad it all is." (S1, G1, P3F)

Moreover, multiple participants felt that the videos were supposed to be fear producing. Explaining this, participants stated that it felt threatening, certain images were showing danger, or that they got the feeling of being warned. Furthermore, in relation to the idea of fear producing, participants stated that it felt very intense.

A small group of participants expressed positive feelings of engagement. They would state that they could see people being "hooked" on this, how they thought certain images were funny, or parts of the videos felt entertaining or they were intrigued.

Critical assessment

Prominently, a theme of critical awareness was found. Within this theme, participants critically highlighted those aspects they considered important in terms of the style, format, and imagery.

Image recognition was detected as participants noted certain images that stuck with them. Images that stood out to them were for example the image of the virus, the old/war images, the aluminium foil, or a specific person in one of the videos. Recognizing similarities within image recognition can be interesting when focusing on what aspects stand out to people. Furthermore, the importance of audio is closely linked to this imagery as most participants found this need for audio as imagery was not enough for them. One participant stated:

"You can already see that about images with [participant's name] and I, of course it can be diametrically opposed to how you interpret them. So I do think that audio is necessary to understand what it is about." (S1, G1, P1M)

Even though certain images stood out, they still leave room for interpretation, hence the need for audio. However, it is important to point out that there were a few participants that pointed out that audio was not always essential to them. Contributing to this tug of war between images and the need for audio, was the lack of clarity and the questioning of the purpose of the videos. The images that were used, or the number of images that were used, contributed to the lack of clarity for participants. Following along those lines, the purpose of the use of certain images or the videos seemed to be unclear. For example, one participant stated that video one had a lot of images which made it very difficult to understand the video. Another participant explained that he was doubtful of the purpose of video one as he was not sure if they were dealing with people who were very skeptical of the relation between 5G and corona or if they believed in it. The lack of clarity and the unclear purpose in the opinions of the participants show their critical look at the videos.

Building on the critical assessment of participants, a number of style/format choices were highlighted or critiqued. Again, the American style seemed to be an important aspect and participants expressed the importance of a certain style as this could influence the viewer in their opinion.

"It doesn't have to take place in America, but I will say it is an 'American style' and that naturally influences the viewer." (S1, G2, P2M)

Furthermore, participants felt it was a "bombardment of images" and critiqued the fast-paced style that was chosen. Some aspects of the style felt very aggressive or "propaganda-like". Some participants were questioning the video's diversity, mainly considering gender.

"And then there were indeed different layers of the population. In a way they tried to mimic it a bit, also in diversity. If I remember correctly, it was only women. Anyway, they try to create at least a little bit of diversity and show this is what people think." (S1, G3, P5F)

Interestingly, participants were very aware of their own personal lens and even related to their own experiences at times. This made them have a very critical point of view, as they were reflecting through their own lenses. Overall, participants seemed to be very critical about the style, format, and imagery that was chosen and most participants regarded them negatively.

5.4 Second Group Discussion

During the second discussion activity, the following questions were used in each break out session to guide the discussion:

B1. Now that you know what the videos were about, how do you feel? How has the sound changed your perceptions and interpretation of the content?
B2. Considering the content of the second video, do you think it is appropriately conveyed? Do you think the way the information was presented was effective? Would you trust what is said by the people talking? Is COVID19 a topic on which has been said everything or you think that much still needs to be said?
B3. Considering the first video, do you find appropriate the way in which the argument is presented and the images used? Who do you think the narrator is? Do you think the narrator was trustworthy? What do you know about the topic discussed in the video?

We again used a constructivist grounded theory approach to analyse the transcriptions. Through this, six main themes emerged for the second group discussions which were built upon eighteen different axial codes. First, there seemed to be a personal assessment in which participants assessed and critiqued their personal lenses. Secondly, another credibility assessment was made in which participants discussed how they were doubting the credibility of the videos, credible aspects that (would) work in the videos, and the importance of source. Third, a component and content assessment was made in which the

components and contents of the videos were critically reviewed. Fourth, a critical assessment was made in which style, format, and content that was perceived less favourably were critically reviewed. Fifthly, feedback was given through which participants expressed advice for improvement of the videos as well as advice for societal improvement regarding the theme of the videos. Finally, an emotional assessment was found through which the participants expressed their feelings.

Personal assessment

Within the second group discussions, participants seemed to be very aware of both their own framework and their culture. There was an overall consensus that they looked at the videos within a certain way as they all came from a certain social class, mostly linked to their education. One participant stated:

"So in that respect I think, yes, that's a bit of a critical point. Perhaps we, as a scientific elite, are very much engaged in thinking about others." (S2, G3, P3M)

This participant refers to themselves and their fellow participants as a "scientific elite". Other participants used similar terms, such as "filter bubble" or "academic bubble" to refer to their personal standpoint and how this influences their opinion and the discussion as a whole. Furthermore, participants reviewed the content of the videos by relating it to their own experiences which illustrates their personal sense-making process.

When discussing the videos, a few participants noted the importance of their culture when reviewing these videos.

"But I do think that people are very down to earth, but also very skeptical in the Netherlands and a little surly at times. You know, I just want yes or no, done." (S2, G1, P3F)

Overall, participants were very aware of their own cultural and personal frameworks, which is a very interesting finding that influences the themes found as these frameworks can affect thought processes, opinions, and decision making.

Credibility assessment

When assessing the videos with audio, a credibility assessment arose. As most participants highlighted that they were still doubting its credibility, credible aspects were also mentioned. Furthermore, the importance of source was highlighted within the discussions.

Now that people had heard the audio, it seemed that, when assessing credibility, honesty and truthfulness became important aspects of credibility. Some participants stated they would not necessarily believe the videos like this, or that it is hard to trust it completely.

Furthermore, they would highlight it did not feel trustworthy or it looked made up - or too well thought out. The use of wording, the arguments, or style of arguing were mostly mentioned to "detract from credibility," as one participant stated:

"And that first video, as I said, I estimated him very seriously in the beginning, that man, but because of his way of arguing and because of the choice of words he used, for example the fact that he did link that man. , he said, "He's got his name tag on the wrong way, and he showed it." It's one of those easy ways to make someone look a bit ridiculous. That I really have a tendency to think, yeah, why should I believe you? So for me that really detracted from its credibility." (S2, G3, P4F)

The fact that the creators of the videos could choose who they would interview was highlighted again. However, now that the content was clear, most participants also felt the roles were more clear and that knowing the context promoted credibility.

"But that might be easy to get into everyone, because I think about America again anyway, because that is a very naturally polarized country and when people from different backgrounds tell something about their own experience with COVID, that it might then become a bit more realistic for people who don't believe in it." (S2, G3, P1M)

Another important aspect that derived from the credibility assessment was the importance of source. Participants stated how you cannot always check the source or that a good information source was missing. Furthermore, they stated that social media as a source could possibly be more 'dangerous' or 'steering'. Overall, verifiable information is essential in the view of the participants.

Component and content assessment

Closely related to the next theme is the component and content assessment, in which participants highlighted those aspects that they found important (or not) and what they were still questioning in terms of the content.

First of all, the audio was considered an important component to the videos. Participants found the videos with audio less chaotic, it gave them a lot more context, and it changed the participants' perception. Some participants found it very confronting that the audio is able to change one's perception a lot, that information was different than expected, and some participants stated they were afraid to obtain wrong information and kept questioning it. They highlighted that they thought audio was important as we frequently watch videos without audio on social media.

"At least, if I'm somewhere and I quickly check my Facebook, then I don't have my sound on. Because then I think, those people don't need to hear what I'm watching. But then you actually got the wrong impression. Then you have not understood the message they are trying to convey. And we actually had that with the first, with the second video, it seemed very- At first I had a different impression than the second time you- That it- It gives a lot more context and you miss that without sound. " (S2, G2, P4F)

In terms of the content of the video, the participants discussed the relationship of COVID-19 and 5G once again, but this time felt they understood the direction of the relationship. Participants also delved deeper into this topic as it is very recent and participants were quite passionate. Closely related to this are the discussions about the purpose or the goals of the videos. Some participants stated that this video was trying to 'prevent' people from becoming conspiracy thinkers by stating the negative relationship of COVID-19 and 5G. Furthermore, with the second video, participants felt there was an emphasis on the seriousness of COVID and that this was the purpose of the videos in order to make people aware of the seriousness of COVID.

Outside of the content and audio, participants highlighted that the format and style is considered important to the message as a certain format is chosen 'on purpose' . The way of communicating is considered of essence and the format/style through which this is presented can contribute to the purpose or goal of the video. One participant explained:

"Getting those people to tell that story has a purpose that I think - Well, that seems clear, that's to make people aware that the disease can be serious. And thereby encourage people to behave according to the guidelines." (S2, G2, P2M).

Critical assessment

Within this theme, critiques specifically of the content, style, and format are given. The critiques mostly consist of aspects that participants did not enjoy or were questioning.
A lot of participants felt a certain distress toward the content as they perceived the video to be making fun and ridiculing a certain audience, namely conspiracy thinkers. This way of presenting and wording the content seemed to be distressing the participants, as they did not like this approach. Furthermore, the content felt very polarising to the participants and this was something that disturbed the content in their opinion. One participant stated how the words and images within the videos could very well be counterproductive.

In relation to this, participants felt that disturbing stylistic choices were made. It felt loud and screamy, with images that were flashed too fast, it looked messy and chaotic, and

participants expressed the use of unfavourable imagery as images were restless or too slick. One participant summed up his opinion:

"What I said before about saying that the presentation has a form as if it were fake news, I think it is very unwise that such a garish film is made while you are indeed trying to explain something. I think it- This is completely counterproductive and I think that you only reach the target group of, they try to convince me otherwise. They're shouting in my ear." (S2, G2, P1M)

In relation to stylistic choices, some participants critically questioned the diversity within the videos. These questions related to gender mostly, or participants felt a need for more diverse experiences. One participant also quickly stated race as they thought this was considered when making the videos. Participants mostly noted that men were not sharing any of the experiences or other roles were not taken into account. Some participants even noted how men were presenting the authority roles and women were providing the emotions, which they thought the video did on purpose. One participant expressed their need for diversity as follows:

"I also thought at one point, show men then too. And also show what people look like when they have recovered. But above all, show the people who work in healthcare. And we saw nothing of that." (S2, G2, P3F)

Feedback

The theme feedback was found as participants eagerly presented recommendations and created advice for improvement of the videos. Furthermore, participants summed up a need for societal improvement and referred to the government.
The most striking recommendations for improvement of the videos were that one should take 'the other side' more seriously, there is more to be said about corona that is more important in eyes of the participants (e.g. the current state in hospitals and healthcare workers), and one should show counterarguments. Mostly, participants expressed the need for creating a serious discussion, and that one should show interest and be understanding toward "the other side". One participant illustrated:

"I'm not a psychologist, but that the people who- As soon as you contradict them, at that moment they are more likely to harden in their point of view than to actually start thinking about their point of view. The point is that you can indeed go along with them much better and say gosh, what are your arguments and why do you think this? " (S2, G2, P1M)

Within the discussion of COVID-19, certain discussions went a little off-topic regarding the videos and participants felt that the problem often lies with the government. Some referred

to the fact that younger audiences should get an "introduction to media" to become more aware. Mostly, it was noted that governments should improve by being more transparent and show their insecurities to improve the situation.

"Yes, I think so. Because now there is communication like, we are going to do this or it sometimes comes from-, like that lockdown eh, it is up to you, blah blah-. But just say: guys, we don't know. We have to do it together, they say now and then, but that also shows that they don't know everything either. And that this is something new for everyone and that we are really looking to get out of this. And don't stand there like, okay, we decide and it becomes what we want, because that's not how it goes. I think transparency is important in this whole thing and also saying if things go wrong, also raise it." (S2, G1, P1M)

Emotional assessment

The last theme that was found was the emotional assessment. This assessment was found to be less evident than during the first discussions. Mostly, participants stated again how they felt the videos were very "over" dramatized and emotional. They felt the videos were trying to provoke a lot of emotions and this "drama" was often linked to the fact that it was considered "American media". Some participants noted other stylistic choices to build this "drama" as well:

"Of course you can convey a lot of emotion through- I think there was also a little bit of those war noises, right? Just say to that woman who will- I understand the choice, but I wouldn't believe it like that, no." (S2, G2, P3F)

Finally, a small number of participants linked the video to frustration. They felt that the videos produced frustration, either within society or for them specifically. One participant stated specifically that he felt frustrated that videos like these were even necessary and they were still being made - most likely referring to debunking conspiracy theories. He expressed this frustration as follows:

"What did arouse, what I eventually thought about, is that for me, those films, both 5G and the second film, cause me a kind of frustration that it is actually necessary to talk about this in such a way that people still- I don't know how old this movie is, but these kinds of movies are still being made." (S2, G1, P3F)

5.5 News checking usage and consideration

During the news checking activity, participants were asked if they have ever fact checked before, and if so where and how. Most participants stated that they had never specifically

checked facts before. One participant mentioned her use of Wikipedia if she would not understand something in an article. Others considered their network highly important.

Talking about news items was done by most of the participants with either family or friends as this gives interesting discussions in their opinion. Another reason was for them to reach out to someone in their network with a certain profession. An example that was given here is that one of the participants had reached out to a friend who is a lawyer to get more information on a certain law that they had seen in an article. Another participant mentioned how her sister is a biologist and she can give her information that only scientists can obtain, which often gives her better perspectives of certain stories. Something that was interesting is that when asked about fact checking, some participants felt the source already told them if they would consider it trustworthy information. Certain sources or newspapers are considered more credible in their experience.

Using different fact checking websites that were recommended, participants were asked to review the websites and to critically reflect on using these websites. The main outcomes of these discussions were that they have to be more user-friendly and easy to find. This derives from the fact that on one of the websites you could not search specifically on a topic, and one used the wrong URL (.com instead of .nl) and ended up on a completely different website.

During this activity, participants critically reviewed current media and their news sharing activities. One respondent highlighted that he would like for social media platforms to do the fact checking for them and put the sources underneath so you could immediately see if something was true or not. Another highlights the importance of visuals. A case in point is the Instagram stories of NOS, a Dutch public broadcasting news channel. These stories are fast paced, compact and highly visual. Participants considered this very successful, especially for younger audiences. Overall, younger audiences were believed to be incredibly important. A returning subject was that of media awareness among young people and how it is essential that they are educated about the framing of (social) media. Furthermore, education level was considered to be important for interpreting information, as well as for discussion styles and how both the media and citizens should keep this in mind to counteract the emergence of “filter bubbles”.

5.6 Recommendations

In the final plenary session, participants shared the following recommendations for science communication:

- The tempo and density of information needs to be appropriate for the audience, because audience members would like to have sufficient time to process the information and form their own opinions.
- The communication needs to be engaging otherwise the audience loses interest.
- Communication is more credible when it resonates with personal experiences of audience members, however, participants also recognised that they need to remain critical and not believe information just because it fits into their worldview.
- Participants seemed well aware of the dangers of filter bubbles and recommended to take seriously the experience of younger society members who spend a considerable amount of time on social media.
- Science communication should be careful not to be too elitist and should strive to reach different segments of society and not only the “elite”.
- Audience members are sensitive to the intentions of the communicator and if a topic is presented from only one perspective it can create the impression that the communicator has an agenda. Participants preferred to hear a more complete story from different perspectives.
- To communicate credibility, it is important to mention the source and the affiliation or background of the communicator.
- For science communication for young people, use social media like Instagram, TikTok and YouTube in combination, and adjust how the message is packaged on these different platforms for different audiences, ideally with social media and/or marketing professionals.
- To avoid polarisation, give the word to both sides of an argument and do not make a priori assumptions that one is more reasonable than the other.
- Before attempting to engage in science communication, the communicator needs to critically ask themselves what their intention is, and ideally science communicators will stay neutral and stick to the facts they have evidence for.

5.7 Problems and limitations

Taking feedback from participants as well as feedback from moderators into account, the main issue that emerged was the lack of diversity in backgrounds among participants. The group of participants was considered to be very homogenous, mostly similar in terms of education and interests. A more diverse group of participants could have led to different conversations and opinions that have not come to light in the current data. Nevertheless, the retrieved data has led to interesting insights and findings.

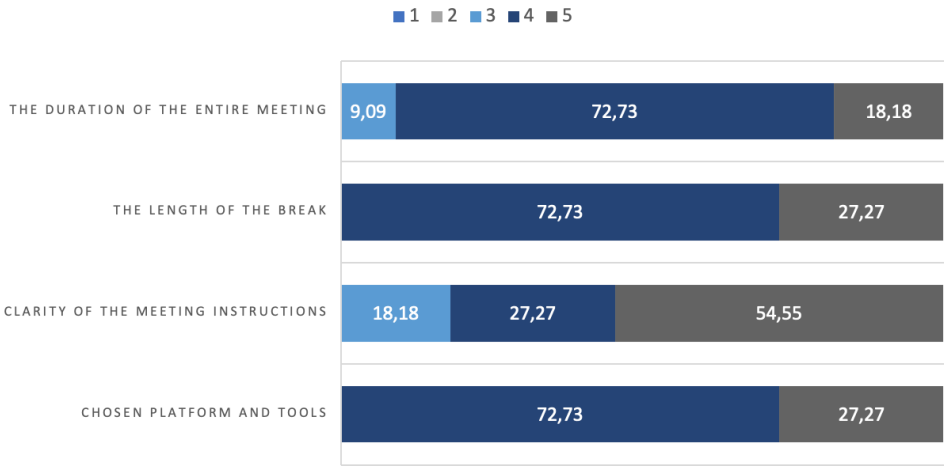
In terms of organization, the different changes of groups when some participants did not show had to happen rather quickly which meant groups were quickly made and diversity among participants could have been easily overlooked. As for the discussions, most felt that there was more time needed for these discussions, specifically the second one. After knowing what the videos were about, a lot of different opinions, experiences and information was shared; which would have led to more elaborate discussions if time had allowed for it.

5.8 Participants' evaluation questionnaire

At the end of the workshop, a link to the evaluation questionnaire was sent out to the participants. Almost all of the participants filled out the questionnaire directly after the workshop. After two reminders had been sent out in the week after the workshop, 11 out of the 13 participants filled out the questionnaire. The questionnaire was created using Qualtrics and only took several minutes to fill out. The following results derived from the data.

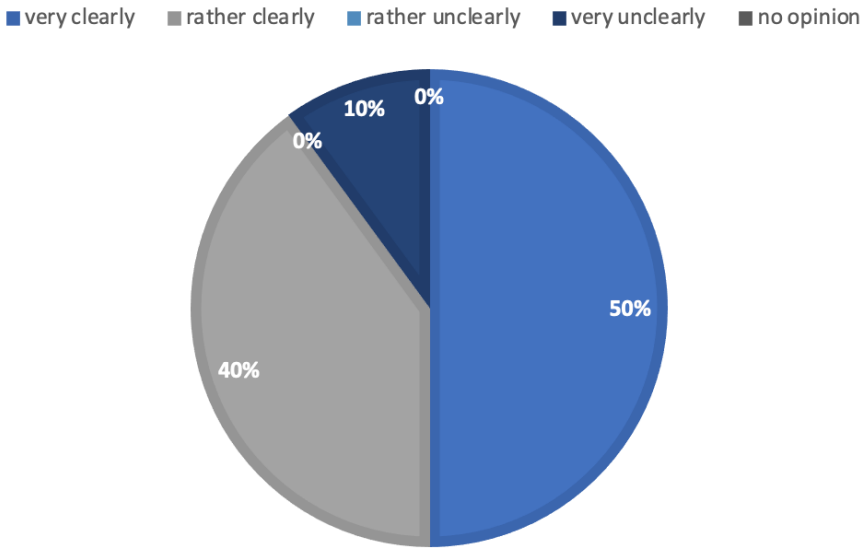
The evaluation started by asking the participants feedback on the organization specifically (see table X). Overall, participants were very satisfied with the organization of the workshop. Both the length of the break and the chosen platform and tools scored very high. Opinions on the clarity of the meeting instructions diverged more, but the instructions still scored quite high.

Figure 16: The Netherlands - how do you evaluate the organization of the workshop in terms of: (Please put an X in the selected field, 1 means the lowest and 5 the highest grade) (n: 11)



When asked about the presentation of the discussion rules, participants were overall very positive. 50% of the participants considered the explanation of the rules to be very clear, and 40% considered the rules to be rather clear. Only one participant stated to find the presentation of the rules to be very unclear.

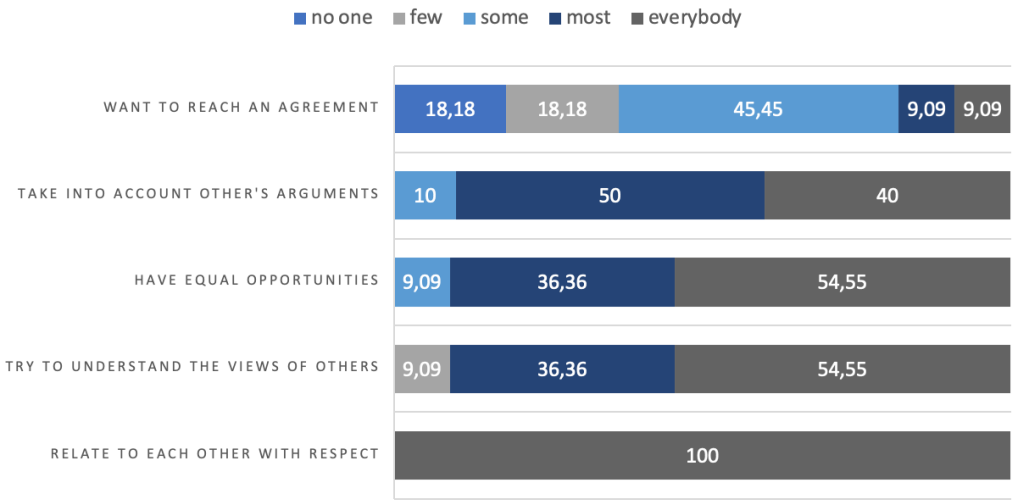
Figure 17: The Netherlands, in your opinion, the discussion rules were presented: (n: 11)



An important aspect of the evaluation questionnaire was to describe the behaviour of other people in one's group. Both positive and negative behaviour of the participants were taken into account. In terms of positive behaviour, 100% of participants felt that everyone related to one another with respect. 54,55% of the participants felt that everybody tried to understand the views of others, as well as considered that everyone had equal opportunities during discussions. 36,36% felt that most participants tried to understand the views of others, as well as considered that most had equal opportunities during discussions. One participant concluded that some had equal opportunities, and one participant considered that only a few tried to understand each other's views. In terms of taking into account other people's arguments 50% of the participants concluded that most took other people's arguments into consideration, 40% found this to be everybody, and 10% thought only some took other people's arguments into accounts. Mostly divergent was the opinion on the positive behaviour of wanting to reach an agreement. 45,45% felt that some wanted to reach an agreement, 18,18% thought no one wanted to reach an agreement, 18,18% thought few wanted to reach an agreement, 9,09% thought most

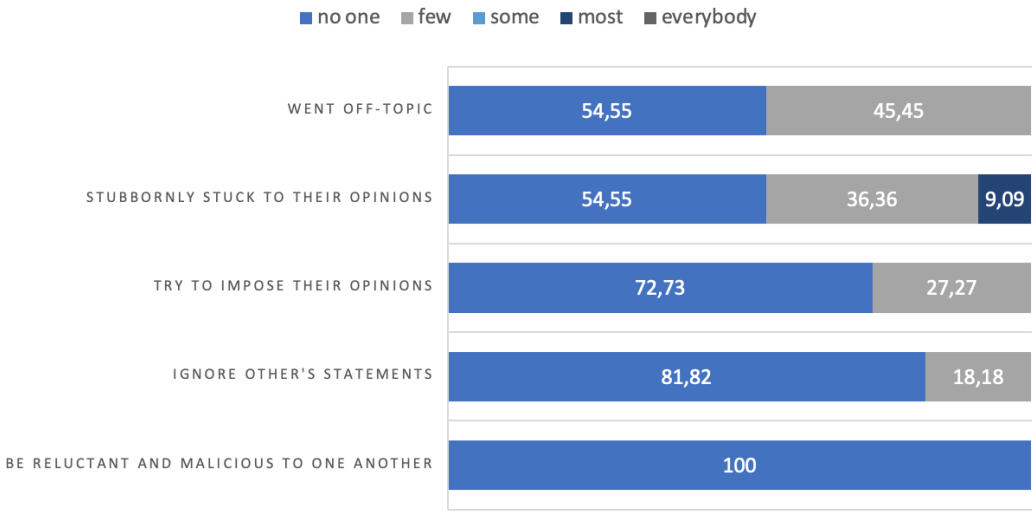
wanted to reach an agreement, and 9,09% believed that everyone wanted to reach an agreement. Overall, positive behaviour scored pretty well among participants.

Figure 18. The Netherlands, how can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), positive behaviour (n: 11).



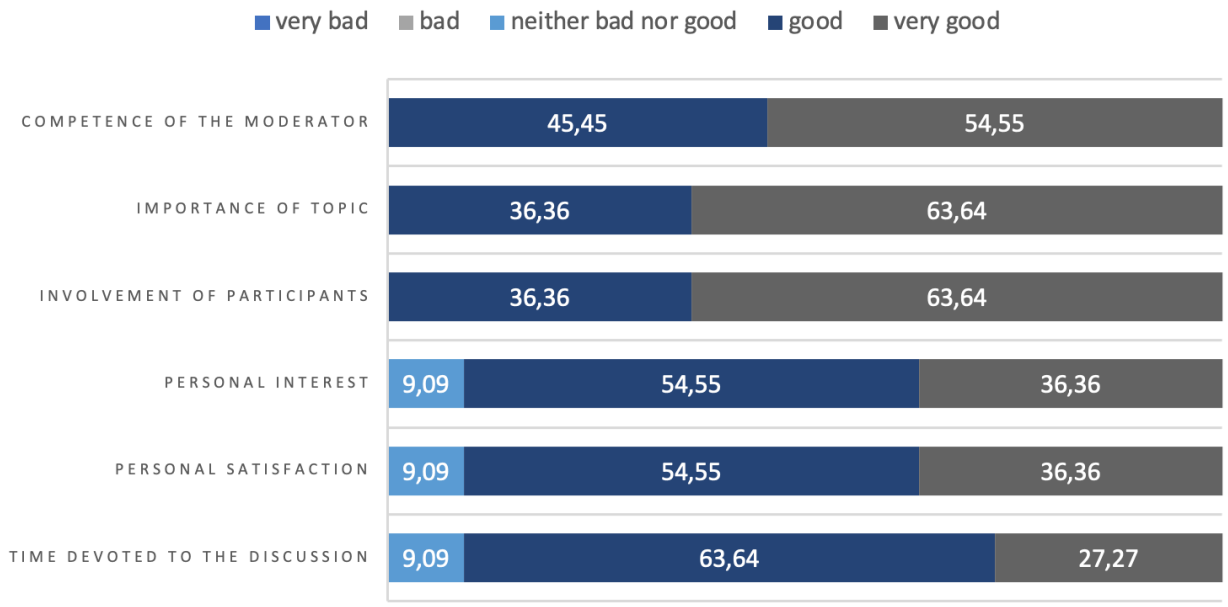
In terms of reviewing negative behaviour, 100% of the participants considered no one to be reluctant or malicious to others. 81,82% thought no one ignored other people's statements, of which 18,18% felt that few ignored other people's statements. When rating others on trying to impose their opinion, 72,73% of participants felt that no one imposed his or her opinion, where 27,27% felt that few did try to impose their opinions. Scoring a little higher in terms of negative behaviour was others stubbornly sticking to their opinions, of which 36,36% felt that few did, and 9,09% felt that most did. 54,55% felt that no one stuck stubbornly to their opinions. 54,55% felt that no one went off-topic, where 45,45% felt that few did go off-topic. Overall, there is not one negative behaviour that scored very highly among participants, which can be considered a positive outcome.

Figure 19: The Netherlands, how can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), negative behaviour (n: 11).



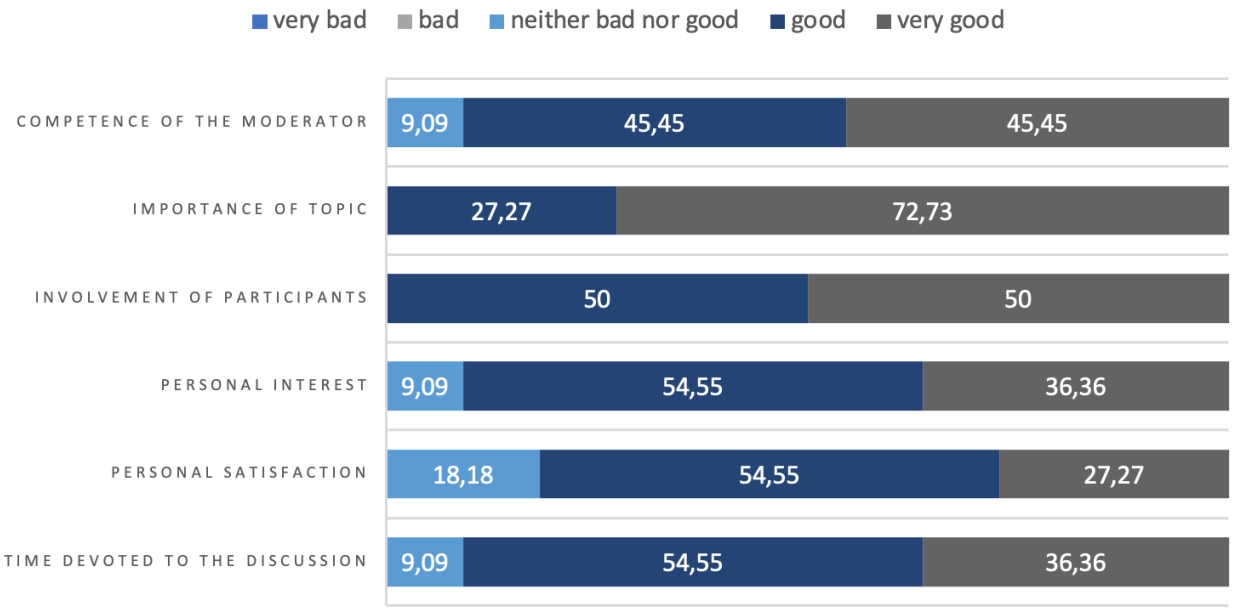
When specifically evaluating the group discussion on the videos without audio (see table X), options were given ranging from very bad to very good. The importance of the topics and the involvement of participants retrieved the highest scores (63,64% handed out a 'very good, and 36,36% handed out a 'good'). After, the competence of the moderator retrieved a 'very good' by 54,55% of the participants and a 'good' by 45,45% of the participants. 54,55% gave a 'good', 36,36% a 'very good', and 9,09% of the participants a 'neither bad nor good', in terms of personal interest and personal satisfaction. The time devoted to the discussion was considered good by 63,64%, very good by 27,27%, and neither bad nor good by 9,09%.

Figure 20: The Netherlands, how do you evaluate the group discussion on video without audio on COVID-19 in terms of: (n: 11)



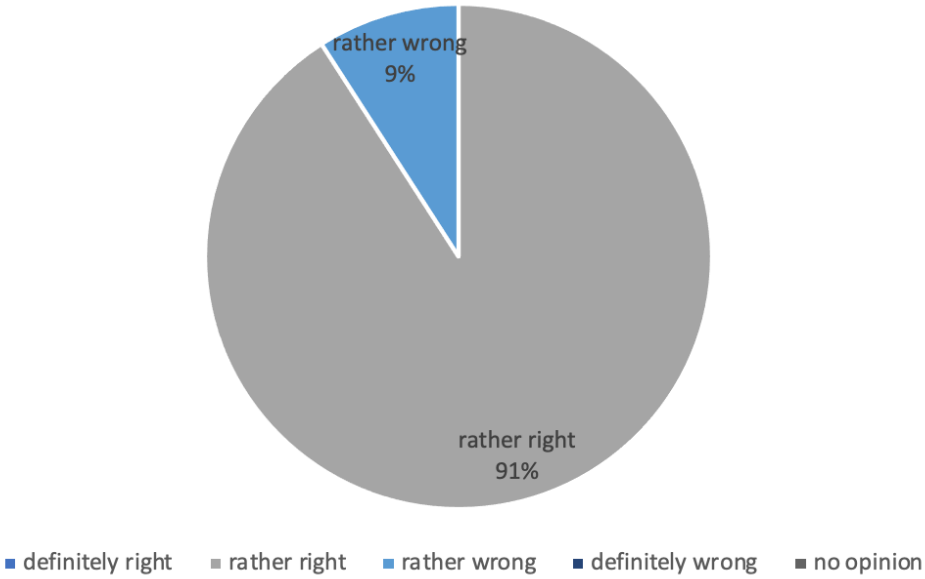
When evaluating the group discussion on the videos with audio (see table X), options were given ranging from very bad to very good. The highest scoring attribute was the importance of the topic of which 72,73% of the participants gave this aspect a 'very good', and 27,27% gave this aspect a 'good'. The involvement of participants was given a 'very good' by 50%, and a 'good' by 50% of the participants. 54,55% of the participants gave both personal interest and time devoted to the discussion a 'very good', 36,66% gave it a 'good', and 9,09% gave these aspects a 'neither bad nor good'. The competence of the moderator was rated a 'very good' by 45,45%, a 'good' by 45,45, and a 'neither bad nor good' by 9,09% of participants. Scoring lowest, the personal satisfaction was rated a 'very good' by 54,55%, a 'good' by 27,27%, and a 'neither bad nor good' by 18,18%. However, no alarming dissatisfactions were detected.

Figure 21: The Netherlands, how do you evaluate the group discussion on video with audio on COVID-19 in terms of: (n: 11)



When asked if meetings as such are the right or wrong way to collect opinions on topics related to the ways of communicating the knowledge provided by scientists, 91% believed this to be rather right, where 9% ought these meetings to be rather wrong.

Figure 22: The Netherlands, in your opinion, are such meetings the right or the wrong way to collect opinions on topics related to the ways of communicating the knowledge provided by scientists? (n: 11)



At the end of the evaluation questionnaire, room for commentary was left for participants. Some critical comments entailed that it would have been better to have less academic participants, which was a recurring comment, or that the second session felt more hasty (more questions than there might have been time for). Other participants showed their positive engagements, whilst one participant asked for the possibility to review the workshop, another participant took the time to write an email on his opinions regarding the topic of the workshop, and positive comments such as that it was nice to be able to join, that it was educational, and that it was interesting to engage with these different opinions.

5.9 Conclusions emerging from the Dutch SciCom workshop

Overall, the Dutch workshop ran smoothly without any major issues. Interesting insights have derived from the data and the importance of audio has become highly visible. The engaging discussions led to critical reflections and a numerous amount of recommendations for scientific communication.

Within the first group discussions, the subjects of the videos were discussed and a need for audio to fully understand these topics was expressed. Furthermore, a credibility assessment took place and participants expressed both a lack of credibility and aspects that created a credible appearance. Along those lines, participants conveyed a critical assessment of the style, format, and imagery of and in the videos. Overall, there seemed to be a wide range of emotions deriving from different notions within the first group discussions, such as aversion, frustration, “over” dramatization, and fear producing.

Within the second group discussions, participants were very aware of their own personal and cultural lenses, they discussed (the lack of) credibility once again, and took into account components and content of the videos while doing so. Participants critically assessed the videos and explained their preferences as well as their advice for improvement of the videos. A concise emotional assessment was present, through which frustration and “over” dramatization was found again.

Important recommendations for scientific communication include, but are not limited to, using an appropriate tempo and density of information for the audience, science communication should be careful not to be too elitist, topics need to be presented from multiple perspectives, and to communicate credibility, it is important to mention the source and the affiliation or background of the communicator.

6 The Austrian Citizen SciCom Workshop

The Austrian TRESCA workshop pilot ran smoothly, without major technical problems. The local organizer (ZSI) provided a chance to each participant who felt unsure about online tools (e.g. elderly participants) to get accustomed to the ZOOM online platform and its features at a pre-meeting organized a few days before the actual Workshop. This might have contributed to the successful implementation of the Workshop.

Opinions divided on the length of the meeting: some said that two and a half hours were slightly less than optimal but others would have been interested in a longer discussion at the end of the meeting. Almost all participants however agreed that 35 minutes seemed too much for the first discussion, while it was not nearly enough to debate every aspect during the second discussion. This is even true so that fewer than expected could in the end take part in the meeting.

The short break held between the second and the first session was also useful and served the important purpose of not getting tired with a too-long session. Since no participant left in the break, it can be assumed that their interest was upheld and they wanted to find out what would and could happen in the second part of the meeting.

To verify the news gathered with the two videos, the participants searched for information on a fact checking site. This research has not been exhaustive but it has been done with the idea to provide the references of an efficient and useful web tool. Even though some participants have never before engaged with such tools this exercise has also run in a smooth and efficient way.

The outputs gathered in Austria consist in slightly less than five hours, which resulted in 91 pages of transcriptions. Moreover, 16 participants responded to the participant evaluation questionnaires and moderators gathered 1 MIRO board, 1 chat and 2 files of notes about recommendations.

6.1 Organization of the Workshop

The TRESCA citizen science workshop was organised on 4th December 2020 (Friday) between 1:30 pm - 4:00 pm in Austria - due to cultural habits the end of the working week was identified to be the most successful time slot reaching out for a wide range of citizens. The date was chosen to give the highest chance for working people and in particular parents to participate during the soft lockdown period initiated due to the COVID-19

pandemic. A Friday afternoon was considered as the most appropriate to enable the participation of the broadest stakeholder group.

The agenda followed the initial plan provided by the Italian partner Observa. The plan was followed upon with a minimal amount of delay - getting acquainted with the ZOOM virtual platform lead to a minor delay in the timing of the 15-minute break, after which a bit more time was spent on fact checking websites (10 instead of 5 minutes), resulting in a slightly shorter time used for discussing recommendations and filling out the questionnaire at the end of the workshop. Overall, the 2.5-hour-long timeframe was observed (a longer duration was considered to be inappropriate for a virtual meeting).

The recruitment process for participants started on 7th July 2020 with a press article disseminated via the ZSI Website (see: https://www.zsi.at/de/object/news/5610) which is frequently accessed by (mainly) Austrian stakeholders from academic sphere, media and civil society with an interest in social innovation and innovation research. This activity was followed by a direct emailing to about 400 as relevant identified stakeholders with a diverse disciplinary and/or academic background. In addition, the public relations offices of all relevant universities and universities of applied sciences (in total 41) were contacted per e-mail to boost the engagement of younger people from academia.
After school summer holidays , the press article was further disseminated via two channels such as the Austrian leading media platform for science, research and innovation news, the APA science platform in November 2020 (see: https://science.apa.at/power-search/12935474443003361524) which was reflected by the Austrian quality newspaper DiePresse conducting an interview with two Austrian TRESCA team members featuring again the TRESCA Citizen workshop (https://www.diepresse.com/5900593/fake-news-und-verschworungsshytheorien-wer-traut-da-noch-wem). Although the recruitment plan followed a cross-channel strategy kicked-off in summer also using ZSI social media such Facebook and Twitter or LinkedIn, the success of the promotion was challenged by the Corona pandemic and the 2nd lockdown during this period of the year. Therefore, ZSI workshop coordinators were completing the accreditation process by addressing individual networks to attract further participants and to enable a better balance according to the workshop briefing and guidelines defined by the WP leader.

For easy registration ZSI offered an online process including a first and detailed information on the agenda, GDPR issues and the conditions for participation which was on a voluntary basis. To support those stakeholders with less or no online meeting affinity the host invited

to a pre-meeting on voluntary basis to give a practical introduction to the meeting tool ZOOM.

Table 18: Workshop Agenda of the Austrian Workshop

TRESCA WORKSHOP AGENDA - 4th December 2020	
13:30 – 13:40	Introduction and presentation
13:40 – 14:20	Video without sound, personal notes and group discussion (**Zoom** breakout rooms for group discussion)
14:20 – 14:35	Break
14:35 – 15:15	Video with sound, personal notes and group discussion (**Zoom** breakout rooms)
15:15 – 15:20	Website news checking
15:20 – 15:50	Recommendations
15:50 – 16:00	Questionnaire and conclusion

In the workshop with so many participants, the duration of the second discussion round seemed not entirely sufficient, at least for a couple of groups (see also evaluation and conclusions) therefore it is advisable to extend the work with the planned group activities to 45 minutes each (or at least for the second round).

Altogether 32 people registered for the workshop, and after a confirmation email sent out a day before the event 24 volunteers confirmed their participation, out of which 18 appeared at the beginning of the meeting. However, one of them encountered technical problems and left the meeting before the host's technical personnel could have helped him. Thus, the workshop went forward with a total number of 17 participants.
At an internal post-workshop meeting, ZSI responsible team members and facilitators were identifying potential reasons in the context of the pandemic and the initiation of the 2nd national lockdown as obstacles as well as the absence of a personal meeting scenario including more social elements.

6.1.1 The Zoom conferencing service

The ZOOM platform was selected as the most appropriate tool for the webinar. Host ZSI has extensive experience with the tool and its technical personnel could support the

moderators in case of errors or software failure. In addition, this platform was considered well-known among the general population of Austria and deemed easily manageable even for more senior citizens targeted. As described before, a technical pre-meeting was organised on Wednesday 2nd December at lunchtime to show the software to those who might not be familiar with it before the regional TRESCA Citizen Workshop. 6 stakeholders followed this invitation.

Suggestions were given to the moderators to facultative use of post-its or the shared whiteboard. One moderator utilized it and such images have been stored, while the other three moderators rather turned to more traditional note-taking methods, such as written notes or chat.

6.1.2 Recruitment of participants

Being a qualitative research, the sample has not been representative of the society in Austria but local organizer ZSI did its utmost – under the difficult circumstances brought upon by the COVID-19 pandemic – to ensure a sufficiently diverse and inclusive representation at the workshop. A total of 32 volunteers registered for the workshop but, for private and professional reasons, only 17 actually participated in the Workshop organized on 4 December, 2020. The following table shows the composition of stakeholders, at the same time, indicates a certain emphasis of participants with an academic background.

Table 19: Austrian Workshop, Theoretical and Workshop sample by gender, age, educational level, rural/urban background, nationality, disability and minority, in numbers and percentage.

Theoretical sample for WS n: 32; (%)		**Workshop sample n: 17; (%)**
Gender	**n; (%)**	**n; (%)**
Female	17; 52	12; 70%
Male	15; 48	5; 30%
Age ranges	**n; (%)**	**n; (%)**
18-39	6; 19	7; 41%

40-59	12; 36	6; 35%
60 or >	14; 45	4; 24%
Educational level	**n; (%)**	**n; (%)**
Primary education + Lower secondary	18; 55	0; 0%
Upper Secondary school	10; 32	1; 6%
University of applied sciences		6; 36%
University degree	4; 13	10; 58%
Rural/Urban background	**n; (%)**	**n; (%)**
Rural	6; 20	3; 17%
Urban	26; 80	14; 83%
Nationality*	**n; (%)**	**n; (%)**
Non-local	3; 8	5; 30%
Local	29; 92	12; 70%
Geographic area (NUTS1)	**n; (%)**	**n; (%)**
Eastern Austria	9; 27	12; 70%
Southern Austria	6; 19	4; 24%
Western Austria	6; 20	1; 6%

*No information on minorities (or disabilities) were collected – three participants can be considered as non-local even though they have residence in Austria (since they indicated a different mother tongue at registration).

6.1.3 Recruitment and training of the moderators

ZSI facilitators were selected due to their online moderation and/or multi stakeholder consultation competences. Some facilitators selected for their breakout sessions the remote collaboration tool MIRO to support joint reflection and analysis, other facilitators

brought their breakout sessions with more traditional offline methods to success. To guarantee a smooth processing of the workshop an additional technical moderator supported preparation and workshop sessions.
To introduce facilitators to the agenda, hot issues and potential technical challenges, a manual and workshop preparation meeting ("test run") on 16th of November 2020 were offered.

6.1.4 Limitations and sample composition

Apart from minor technical challenges, the Citizen Workshop ran smoothly, facilitators and participants were mostly satisfied. Anyhow, participants described their experience mainly positively in the feedback online survey which determined the TRESCA Citizen Workshop; some critical voices questioned the online meeting format as appropriate -- further details and quotes can be found at the end of this chapter.

6.1.5 Usefulness of materials developed for the Workshop

The original planning had to be changed due to the ongoing COVID-19 pandemics. Online materials were prepared for the meeting, such as an online registration and evaluation form (Limesurvey platform), PPT presentations, guidelines for facilitators and moderators, videos with German subtitles. After the workshop, all participants received a certificate in PDF format for their contribution.

The evaluation of the workshop showed that these materials were overwhelmingly deemed useful by the majority of participants.

6.2 The Agenda of the Austrian Workshop

The output proofs of the activities were mostly the recordings and their transcriptions. Also, some notes made by facilitators and staff were gathered; in one group the MIRO whiteboard was shared during the discussion activities and the recommendations (the facilitators could freely choose their tools and methods in their breakout rooms).

Each group has been recorded and transcribed during its first and second activity. All the groups have participated together at the recommendations discussion. Austria's transcriptions are available in Appendix II.

Following a table is attached with the transcription time.

Table 20: Registrations and transcription time – Austrian Workshop

Registrations				Transcription time
Activities	**Start at***	**End at**	**File name**	**Transcribed minutes**
Introduction	02:25	14:24	Einleitung.wav	00:11:59
Group 1 Felix	24:20	55:35	Gruppe1-1.wav	00:31:15
Group 2 Felix	1:22:00	1:56:23	Gruppe1-2.wav	00:34:23
Group 1 Stefanie	22:44	55:35	Gruppe2-1.wav	00:32:51
Group 2 Stefanie	1:22:00	1:57:52	Gruppe2-2.wav	00:35:52
Group 1 Barbara	32:00	55:35	Gruppe3-1.wav	00:23:35
Group 2 Barbara	1:22:00	1:52:30	Gruppe3-2.wav	00:30:30
Group 1 Gabor	28:18	55:35	Gruppe4-1.wav	00:27:17
Group 2 Gabor	1:22:00	1:55:48	Gruppe4-2.wav	00:33:48
Recommendations	1:58:30	2:22:08	Ende.wav	00:33:38
Total				**04:55:08**

* Different start dates are possible because at the beginning of the first sessions facilitators asked the participants to quickly introduce themselves. For data protection reasons, these parts were not transcribed.

The 17 participants of the Workshop have been divided in 4 groups. These subgroups have been done in advance during the selection process taking into account the homogenization variables (level of studies, social class…) to favour the interaction and that the members do not know each other but also maintaining some diversity within tables (age, gender, cultural background…). Since some participants confirming their participation earlier have dropped out very lately (organisers were informed only on the day of the meeting or not at all), some last-minute rearrangements had to be done to accommodate the final situation.

Table 21: Austrian Workshop, First group

1st group			
Gender	**Age**	**Area**	**Degree**
Female	50-59	East	University degree
Female	30-39	East	University degree
Female	70+	East	University degree
Male	18-29	South	University of applied sciences

Table 22: Austrian Workshop, Second group

2nd group			
Gender	**Age**	**Area**	**Degree**
Female	30-39	East	University of applied science
Female	50-59	West	University degree
Male	18-29	South	University degree
Male	60-69	East	University degree

Table 23: Austrian Workshop, Third group

3rd group			
Gender	**Age**	**Area**	**Degree**
Female	30-39	East	University of applied sciences
Female	40-49	South	University degree
Female	60-69	East	University degree
Male	30-39	East	University degree

Table 24: Austrian Workshop, Fourth group

4th group			
Gender	**Age**	**Area**	**Degree**
Female	40-49	East	University degree
Female	30-39	South	University degree
Female	50-59	East	University of applied sciences
Female	50-59	East	Upper secondary school
Male	60-69	East	University of applied sciences

6.3 First Group Discussion

During the first discussion activity, the following questions were asked:

Thinking about the videos you have just seen,
A1. What do you think was the content of each of them?
A2. how would you describe the emotions that each of them made you feel?
Write your answer in the chat box or on a piece of paper.
A3. What are the images in each video that triggered your curiosity or that you remember better?

A4. Do you think the videos are about science communication or not? Who do you think the people in the videos are? Please explain why come to your conclusions.

The following topics were the most frequently coming up in the first discussion when participants checked the videos without tone:

- 5G and corona
- Emotionally charged videos
- Lack of clarity – various emotions attached to videos
- Image recognition – different images from videos discussed in detail
- Highlighting style choices
- Difference between the two videos
- Role assessment – professions discussed in videos

Almost all four groups touched upon each of these topics and the generalized main discussion points can be summarized as follows: when guessing the topics of the two videos, 5G and corona came up the most frequently, followed by various conspiracy theories and technological aspects. These subjects were brought up because participants tried to remember the most vivid and memorable images from both videos. Participants referred to several images deemed thought-provoking, notable or simply implausible. Intriguing visual solutions such as the dog with the tin foil hat, the mobile phone wrapped into tin foil or the radio towers were mentioned in all groups, resulting in the main discussion circling around subjects concerning 5G and corona. Images encountered in the second video were linked to COVID-19, such as the hospital beds, the faces of women or the image of the virus. However, many mentioned images that they could not place within the imagined context, such as a man with loudspeaker, company pictures or “cold war” sceneries [actually picture of Spanish flu].

Even though some participants guessed very closely the topics of videos, there was a general feeling within the groups that, without sound, there is a lack of clarity surrounding the real subject(s). In addition to image recognition and discussion, participants tried to identify the role of various persons appearing in the videos: with regard to the second video, it was mentioned many times that survivors or current patients of COVID-19 are featured. Some also mentioned that doctors, nurses, medical students or other medical professionals were presented. As regards the first video, the most guesses came concerning the role of the moderator who seemed to have some authority – maybe an

official, a technical professional, a journalist or a scientist. Some people recognised a group of people and tried to explain this as some kind of interest representation or political group [actually a conference].

Despite the disagreements over the specific topics of the videos, participants tended to agree that both of them were emotionally charged, i.e. full of emotions. They connected this emotional charge on the one hand to the suspected topic, i.e. the ongoing pandemic with the unknown future that it brings, and on the other hand to the high energy radiated by the moderator of the first video. The emotional charge was connected with certain stylistic and visual solutions applied in the videos that were compared to popular science shows in Austria and the United States. More specifically, these style choices mentioned included the face of the moderator put prominently into the foreground, his supposedly loud voice and intonation, the rapid speed of pictures, the camera angles (changing and the perspective given from below the face), the black and white footages (first video), and the emotional interior picture of hospitals, the logo at the beginning, the showcase of names and professions or the more relaxed speed and perceived tone (second video).

While the majority of the participants agreed that both videos seemed to be emotional, a general consensus on the feelings evoked did not materialise. Most likely, the aggressive (assertive) tone of the speaker in the first video was mentioned, underlined by the rapid speed and strange camera angles. This was closely linked to aversion to the video itself – participants found it difficult to watch due to its high speed and unsympathetic moderator. In addition, a multitude of emotions were shortly brought up to describe the videos, such as manipulative, stressful, fearsome, hectic, chaotic or even absurd.

One more aspect that came up quite often was the perceived difference between the two videos: the first one was seen as much faster, emotional and graphic, while the second one was more calm, neutral and probably fact-based. Participants in two groups raised the issue of diversity in the sense that the second video contained a more diverse set of speakers. Some participants told us that the first video reminded them of an advertisement, while the second one of a typical CNN short news item.

Generally, the perception of the videos being very emotional resulted in dismissing them as science communication videos. Many participants expressed their doubts whether these videos can be science communication videos and the general conclusion during the discussion on this subject was that most likely they are not science communication videos (in the traditional sense).

Interesting quotes taken from participants in the first discussion:

Emotions and stylistic choices of videos

"Well, I thought it was aggressive for me [the first video]. Well, for me it all created aggressiveness. So, I would have, if I had the opportunity, I would have actually pressed stop. It was too much for me." (S1, G1, P2F)

"It [second video] also had a more professional feel to it with the insertion of the names and backgrounds, like if it had actually been created by an agency or whatever." (S1, G2, P2M)

"Yes, well, as I've already said it, so this insistent language habitus. It simply creates resistance in me and I don't want to go on watching it, something is resisting it in me." (S1, G3, P2F)

"The first part was a bit amusing at the beginning. You had to somehow assess whether it was meant satirically or whether it was serious. Then, through the camera angle of this frog's perspective, a slight frog's perspective, you immediately had the feeling of this mansplaining that is always in the room." (S1, G3, P4M)

"Because if we go only to the emotions, I think that's a personal experience. And maybe everybody has different experiences of the same situation, I don't know. But in this case, because of fake news, it's really important that we find where the sources come from. For example, the man who gave a lecture. He was a bit strange with big eyes and I have a feeling that maybe he is lying. Or he just wanted to make us afraid." (S1, G4, P3F)

Difference between videos

"I found the first one rather aggressive. So the presentation and the intermediate images came across as rather aggressive, whereas the second one was somehow presented in a more objective way." (S1, G2, P2M)

"There were personal, more personal statements in the [second] video. But I think the viewers should be able to make up their own minds more than in the first video. I think that's important to me, yes. That's the point of comparison for me." (S1, G2, P3F)

"Even with this, these emotions, how shall I say, the unstressed [video] simply has a completely different effect. So it's obvious with the pictures how they also turn on the emotion for me. And yes, it almost goes a bit into sympathy when it's calmer. And more into defensiveness when it's more stressful." (S1, G2, P4M)

"It could be the other way round, because in the first impression the first one was already, yes, as I said, aggressive, the second one was somehow more normal. But I think with sound it could be the other way round. That the first one perhaps makes fun of all these theories. And the second one plays with the material itself in a different way. So maybe it's either factual or maybe it's even more frightening if the survivors tell the story." (S1, G4, P5F)

6.4 Second Group Discussion

During the second discussion activity, the following questions were asked:

B1. Now that you know what the videos were about, how do you feel? How the sound has changed your perceptions and interpretation of the content?
B2. Considering the content of the second video, do you think it is appropriately conveyed? Do you think the way the information was presented was effective? Would you trust what is said by the people talking?
Is COVID19 a topic on which has been said everything or you think that much still needs to be said?
B3. Considering the first video, do you find appropriate the way in which the argument is presented and the images used? Who do you think the narrator is? Do you think the narrator was trustworthy? What do you know about the topic discussed in the video?

The following topics were the most frequently coming up in the second discussion when participants checked once again the videos with tone:

- Importance of source
- Importance of target
- Format/style importance
- Disturbing stylistic choices
- Advice for improvement

Almost all four groups touched upon each of these topics and the generalized main discussion points can be summarized as follows: the first video was considered as 'infotainment' ('half serious – half funny' format) where, on the one hand, the credibility of the source is very important. Many participants had problems with the speaker – before listening to the actual audio content, several of them thought that the speaker is in favour of conspiracy theories and were actually surprised to hear him talk scientific reasoning against the connection between 5G and Corona.

As a disturbing stylistic choice, they tended to mention a discrepancy between the message and the medium manifesting itself in an "over-dramatized" and too fast presentation, constantly changing and strangely elaborated camera angles, and most of all, an 'aggressive' tone of the speaker. This discrepancy hurts the trustworthiness and credibility of the message, i.e. that there is absolutely no scientific evidence for the connection between COVID-19 and 5G, which the participants all agreed with. Credibility might be increased by providing more facts during the video or referring back to sources – maybe providing further links at the end of the video. Participants discussed the importance of proper sources and added that, while their own research and curiosity is of utmost importance, many different sources (online and offline) should be checked to gain a good overview on such topics.

On the other hand, the importance of the target group(s) was discussed in detail. The participants found the first video well-done but only for certain target segments. A generational and a cultural division line was brought up: there seemed to be an agreement that the first video is more effective for younger people and for the American audience. Older people have an aversion towards such 'over-dramatized' stylistic choices presented in the first video, and in general the Austrian (and maybe Middle-Eastern European) audience is not used to such sensationalist presentation of scientific facts, which may act counterproductive.

Some of the participants have also highlighted that the too firm stance of the speaker – where believers in the connection between 5G and COVID-19 were constantly being talked down upon – makes this video an unsuitable choice for less science-savvy target groups, such as conspiracy theorists or people more inclined to believe such unscientific opinions.

The second video was considered by many participants more 'traditional' or journalistic, providing a narrative of COVID-19 survivors. Here the mentioning of scientific sources was not considered as important as for the 1st video since the personal stories themselves serve as sources. However, more facts could have been given in this video too: a potential solution could have been that the opinion of experts or background facts complement the personal tales of the survivors. Such a mixing of emotions and facts could have served to raise the credibility and trustworthiness of the video.

Since at the beginning of the workshop the project partners were mentioned, 2 participants in 2 different groups mentioned Kurzgesagt as a company creating more effective entertaining infotainment videos better suited to a wider range of target audience.

Interesting quotes taken from participants in the second discussion:

The importance of the source

“Because sometimes there are articles that look as if they are scientifically very well prepared, but when you try to find the sources behind them, sometimes you don't find anything at all or they are simply studies that are very questionable in terms of quality. And I think that's quite dangerous, because it looks as if it's well researched, as if it's a scientific article, and very few people take the trouble to research it again, or if the studies are in English or written in a totally complicated way, they can't even check what's said in the articles. That's why I wouldn't refer to this at all, I mean only to the visual material.” (S2, G1, P1F)

"Okay, so about the first video, the feeling for me was that they actually wanted [to establish] a real connection between the 5G and Corona Virus. That's why I was talking about this conspiracy theory. But the surprise for me was that this man was completely against it and he wanted to declare that there is no connection. That was quite the opposite of what I had thought without sound. Just that." (S2, G4, P3F)

The importance of target group(s)

“Yes, so for me it was also with sound, this blatant marketing, so it hasn't really changed much for me, now from my perception. And, yes, (...) one can discuss which target group one wants to reach with it. Probably younger people, because it's more aimed at fast editing sequences, but, yes, whether you really reach them with it, I also question that.” (S2, G1, P3F)

“But again, very briefly, what we probably have to take into account here is that Austrian television and European television are made very differently from US television. (...) And the point is that the clip is a classic US format. That's what people see from childhood when they watch news. It's not presented that way here. That means it has a completely different effect on us, because we are not used to this format at all, yes? And that's why we perhaps have to take into account that we are judging something here that doesn't fit into our classic media consumption at all.” (S2, G4, P4F)

Disturbing or ineffective stylistic choices

“And it [the first video] imitates the style of these half-truth videos in order to have the same potential for dissemination, but the question is whether that doesn't have the exact opposite effect of what it wants to achieve, that it gives other videos that are in the same style but don't really have any truth content more credibility than they should actually get, just because there are some videos that are in the same style but are, I don't know, perhaps better researched. Or,

let's say, truthfully researched. And that's kind of this danger that I see because of that." (S2, G1, P2F)

"So you can bring humour into it, but you still have to stay on a level that doesn't attack anyone [i.e. conspiracy theory believers]." (S2, G2, P2M)

"The first video I would describe as - it has a lurid habitus. And serious science education for me is calm. That's just communicating facts and data, but calmly and not this appealing thing." (S2, G3, P1F)

"(...) I mean there's such and such conspiracy theories, you know what, that's not right, you're on the wrong side or why do you even believe in that and so on. I mean, if he's really got an audience like that in the target, so maybe isn't the best course of action [i.e. ridiculing the conspiracy theorists]." (S2, G3, P4M)

"But with the second one, I don't think anything really came across emotionally for me. They told me, yes, it's worse than you think and it didn't go well for me. But somehow it was, I don't know, if I had read it, it would have been the same." (S2, G4, P4F)

Suggestions to improve the video(s)

"I understand the idea behind it and I think it can be improved: (...) who speaks, how do you speak, how do you come across, which camera settings do I use and such decisions were just not made very successfully." (S2, G3, P2F)

"Maybe you could mix it [the second video] up with experts speaking. So that, for example, you first bring up how Corona could affect the lungs, for example. And then the lady tells how she felt. That it was difficult for her to breathe. And so on. That you first bring the facts and then the emotion. Or the other way round, first the emotion and then the facts. That it simply gets more substance." (S2, G4, P2F)

An interesting comparison between the two videos

"But I find it interesting as a contrast between the two videos that the first one actually conveys facts, but the style is also very subjective, very personally coloured. And the second video actually conveys a subjective experience, reports of experiences, but seems very objectively credible and trustworthy." (S2, G2, P3F)

6.5 News checking usage and consideration

At the fact checking part of the discussion, participants were asked about their fact-checking habits, i.e. whether they have ever used specific websites or other sources for such purposes and, if yes, which ones.

The specific question was as follows:

The first video was about the relationship between 5G and COVID19.
C1. Where would you go to double check and find more information about this topic?

As it turned out, the majority of the participants have already resorted to using fact-checking, also in the topic of COVID-19. Instead of specialised websites, mostly 'general' online sources were mentioned, such as Wikipedia, Google Search or Google Scholar. The online versions of (German-speaking) trustworthy traditional newspapers were also mentioned as an alternative. Some people said that they use social media (Facebook was mentioned) by following famous people and/or friends about whom they assume that they have a better overview in certain topics. A few participants said that they watch videos, e.g. on Youtube, and one participant explicitly mentioned project partner Kurzgesagt's videos as a good example for entertaining but well-researched sources in various 'hot topics'. Interestingly, more traditional sources such as printed media, radio or television was rarely mentioned, with one participant explicitly telling us that 'science busters' on TV is a great and amusing way for fact-checking.

The background checks behind these websites were discussed in more detail. The participants highlighted that, since most people have either the time or the inclination and background knowledge to assess the credibility of such sources, the responsibility of moderators or journalists has been increasing. When a website has a good reputation already built up it is more likely that it will be trusted by the participants. A recent trend is that - instead of actual human beings - algorithms decide on the trustworthiness of sources behind news.

Some participants mentioned that they try to check more diverse sources: not just one online site but more, and also online versions of larger newspapers, magazines. In this way they get a better picture on issues ('get out of their bubbles') that they are really interested in but this kind of background check may take up much time. In this regard, online fora were mentioned that these participants check even though they might not agree with the general direction (such as fora giving place for conspiracy theorists) because they are simply interested in what is 'out there' in the online space.

During the general discussion, only one participant mentioned the increasing number of specialised fact-checking online tools and referred specifically to mimikama which was also later shared with the participants. We can conclude that the general public - and also academic people interested in science communication - do not have an awareness and extensive knowledge on such sites. In addition to mimikama, the APA (Austrian Press Agency) and the Corrective fact-checkers were recommended for participants who could shortly check these websites and report back on their experiences. As mentioned, these websites were new to almost all participants who found them quite transparent and understandable, which they deemed as the most important characteristics when having to use such websites. Participants would use these websites for fact-checking, in particular when they are interested in the sources from where certain "debatable" information has been spreading.

6.6 Recommendation

During the final phase of the workshop several comments on group discussions and recommendations on how to improve science communication emerged.

Following, a brief overview of the recommendations:

- The source and the content of science communication must be coherent - some participants were surprised to find out that the first speaker talks about scientific facts, they rather assumed - based on facial expression and context - that he might be in favour of conspiracy theories
- There was general agreement that ‘American’ style media content (both videos considered as such by many participants) may not be ideal to inform and influence Austrian audiences
- The newsworthiness of the second video was questionable for many: a dramatic environment was used to showcase rather trivial storytelling - this also showcases the importance of a fitting background and foreground (speaker)
- It is important to receive news (facts) from many sources and through more formats, such as television, internet, traditional media
- In overall, the target group matters - media content should be established taking into account the specific needs and characteristics of consumers
- Accent and articulation can matter - those who could speak English agreed that it helped awaken feelings towards the speakers
- Too long videos are not advancing the cause of the speakers (these videos were deemed appropriate)

- Too much information are not advancing the cause of the speakers (these videos were deemed appropriate)

6.7 Problems and limitations

From an online meeting between facilitators that immediately followed the workshop emerged that for some groups it would have been necessary to have more time to get into more details in the second discussion - we advise to shorten the first discussion with five minutes and make the second discussion longer with the same amount of time.

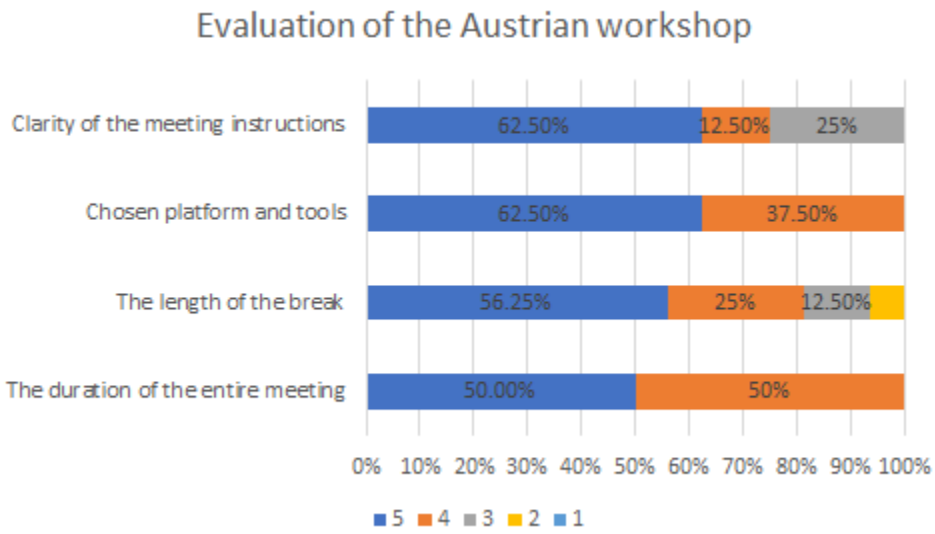
Even though a presentation and the moderator also underlined that the first video round will be deliberately without sound, some participants still complained and suspected a technical problem - clearer instructions should be provided, which can be also done before the meeting without "spoiling" the content or aim of the workshop.

It has also been suggested that the groups could be more heterogeneous, involving more people with non-university degrees. Unfortunately, due to the specific situation emerging from the pandemic the majority of participants had at least secondary school leaving certificate, in spite of all efforts done by the organisers to involve people with lesser degrees.

6.8 Participants' evaluation questionnaire

At the end of the Workshop, evaluation questionnaires were administered to the participants. The response was mostly immediate from almost all the participants (16 out of 17). LimeSurvey was used to put the questionnaire online and the relevant link was sent to Zoom's chat. We gave all participants 5 minutes to answer the questionnaire, or, alternatively, returning the link to the questionnaire in the thank you email, with the certificate of participation attached. The evaluation questionnaire begins by asking for an evaluation of the organizational aspects.

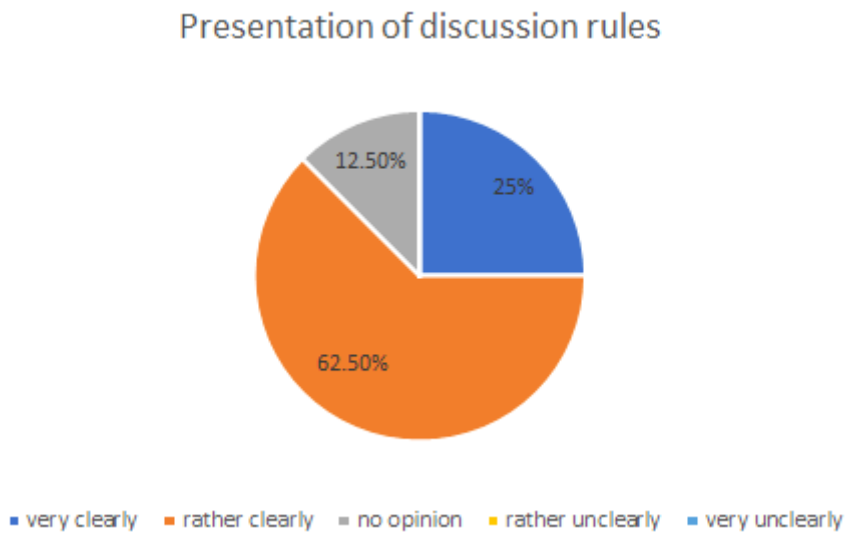
Figure 23: Austria - how do you evaluate the organization of the workshop in terms of: (Please put an X in the selected field, 1 means the lowest and 5 the highest grade) (n: 16)



The participants were generally satisfied with the organization of the workshop, to which they mostly gave top marks (5 or 4) regarding the chosen platform and the duration of the entire meeting. The majority was fully satisfied with the ZOOM platform (10 out of 16), while 8-8 persons gave a score of 5 and 4 to the duration of the entire meeting (2.5 hours).

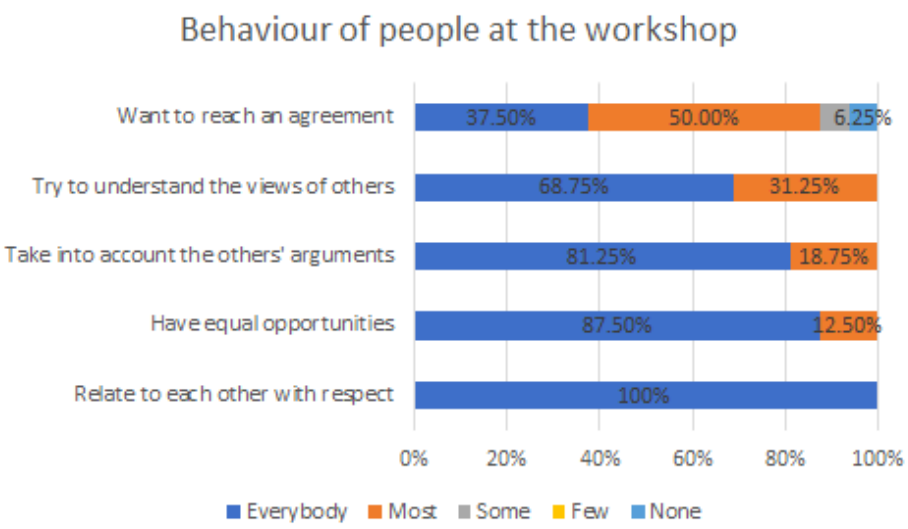
Participants were less satisfied with the other two aspects: the length of the break was deemed by 13 people (very) satisfactory, but one person gave a score of 2 (the only such rating in any categories) - since no further explanation was given to the dissatisfaction we cannot decipher whether the break was deemed too short or long. Thus, the originally planned 15-minute still seems to be the most appropriate duration for a break. In case of the clarity of the instructions, the overall picture is positive (10 out of 16 people giving a score of 5) however 4 persons did not express an opinion (score of 3 - no opinion).

Figure 24: Austria, in your opinion, the discussion rules were presented: (n: 16)



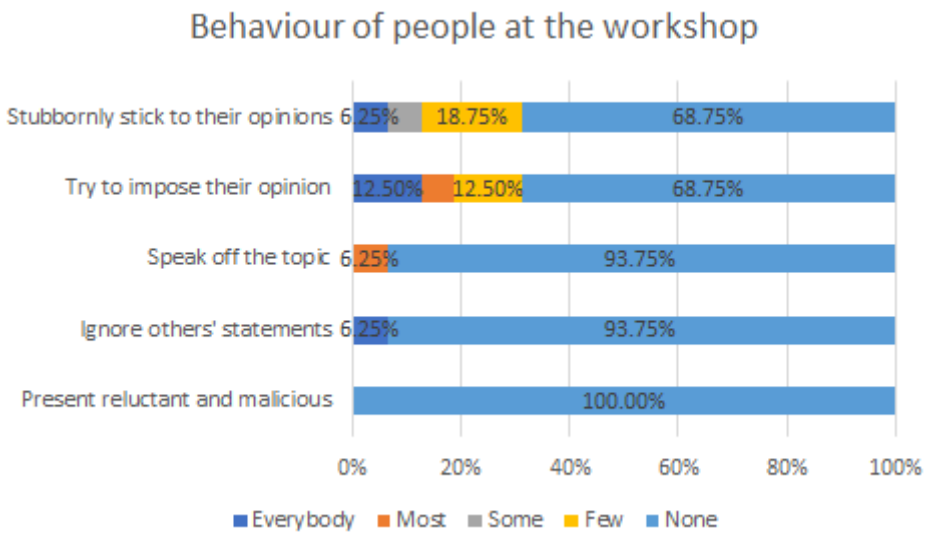
This ambiguity is also visible when we check the opinions expressed about the presentation of the discussion rules where the majority (10 out of 16) said that it was “rather” clearly presented, and only 4 persons were fully satisfied with the presentation. Moderators also observed that some people did not understand that the videos should be first checked without sound and complained for a technical problem. This shows that this aspect has to be better highlighted in such future meetings in order to avoid any potential misunderstanding and confusion.

Figure 25. Austria, how can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), positive behaviour (n: 16).



With regards to how participants perceived the behaviour of other people at the workshop, everybody agreed that participants treated each other with respect, which is a very positive sign for such future endeavours. In addition, almost everybody said that equal opportunities were given to each participant during the discussion, and that people took into account the others' arguments. The former showcases the well-prepared job done by the moderators (confirmed by their positive assessment - see later), while the latter again tells us a positive picture of the participants and the usability of such a virtual workshop format. People were the least positive about people trying to understand each others' point-of-view, as well as intending to reach a common agreement. Here, usually they said that only "most" people wanted to do so and 1 person even told us that "nobody" wanted to reach an agreement. We must mention that it is not necessarily a primary goal of such meetings to have a common opinion at the end of the discussion round - subjective opinions can be formulated and maintained by participants as regards to various aspects of the videos showcased.

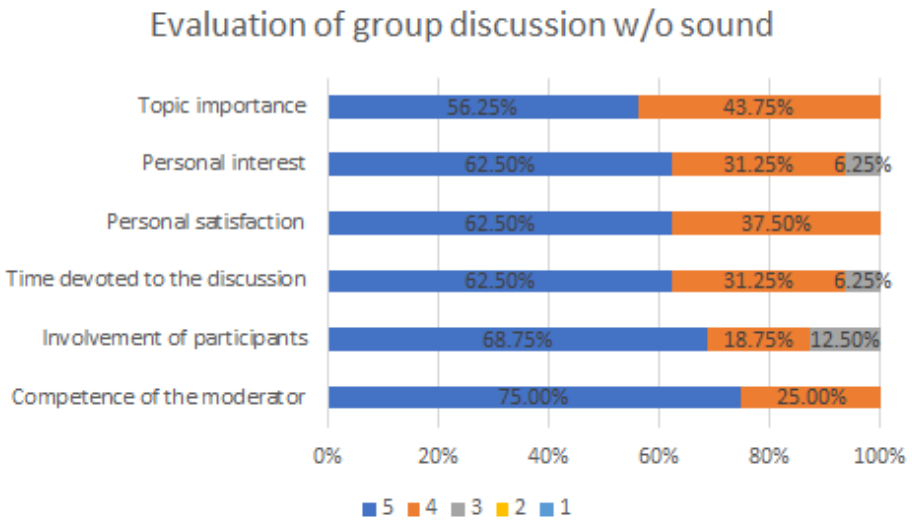
Figure 26: Austria, how can you describe the behaviour of people in your group during the whole workshop? Did the participants: (Please put an X in the selected cell.), negative behaviour (n: 16).



As for the more negative aspects of the behaviour at the workshop, again mainly positive feedback was given. Everybody said that there was no reluctant or malicious behaviour during the discussions, and while 15 out of 16 persons told us that nobody ignored the other's statements, 1 person said that "everybody" did so. We might assume that this answer was given as a mistake (giving the other 'extreme' score for a lack of proper interpretation of the question) since it does not fit the pattern of answers therefore an educated assumption is that nobody felt so that other participants ignored his/her statements. Similarly, a very positive picture was drawn about the direction of the discussions since only 1 person said that "most" people were talking off-topic, while 15 indicated that "nobody" actually did so. This again underlines the work performed by the moderators with regard to keeping the discussion in line with the main topics.

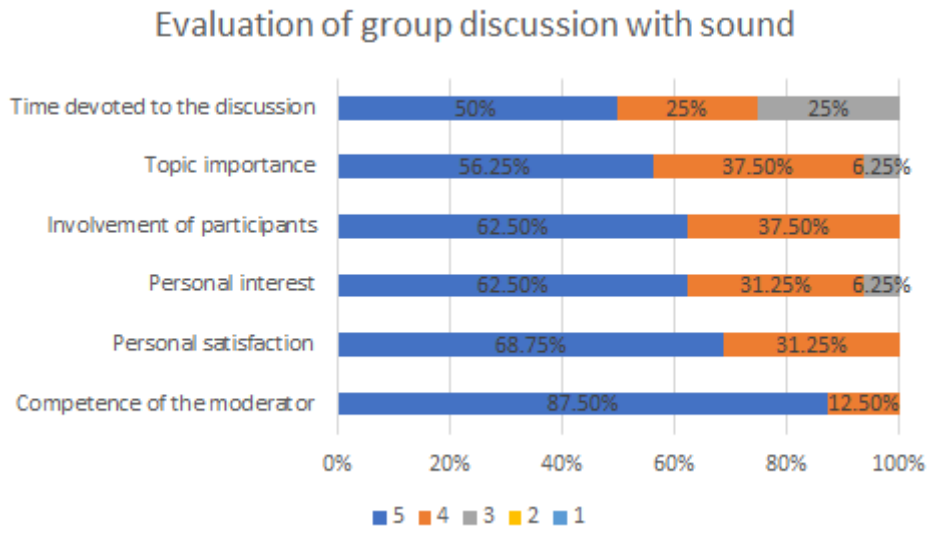
A more varied picture can be seen concerning the perceived 'flexibility' of people in accepting others' perspectives and opinions. While 11 out of 16 people said that "nobody" wanted to impose his/her opinion on the others, or stubbornly remained by his/her opinion, a minority felt that the discussion was hindered by some 'stubborn' opinion leaders during the discussion. It is of particular interest that 1 person said that "everybody" stubbornly stayed by his/her opinion and 2 persons said that "everybody" tried to impose his/her opinion on the other participants - these extreme values are particular since the general view seems to be the opposite and, in the end, nobody was dissatisfied with the event as a whole - see later.

Figure 27: Austria, how do you evaluate the group discussion on video without audio on COVID-19 in terms of: (n: 16)



Evaluating the answers to the first discussion (without sound), participants rated the competence of the moderators with the highest score (12 out of 16 gave a score of 5). Nobody gave a score worse than 4 for 'the importance of the topic" and 'personal satisfaction' either. These two categories obviously are connected with each other: 10 persons indicated a very high personal satisfaction level, and 9 persons confirmed a very high importance level of the topic. In case of the other issues, the answers are more varied in the sense that, while the majority of the persons were still highly satisfied, some participants have also expressed 'no opinion'. Personal interest was awoken for 15 out of 16 people, and similarly 15 people were satisfied with the time devoted to the first discussion. Interestingly 2 persons had no opinion on the involvement of participants, but the overall assessment is still highly positive in this regard too.

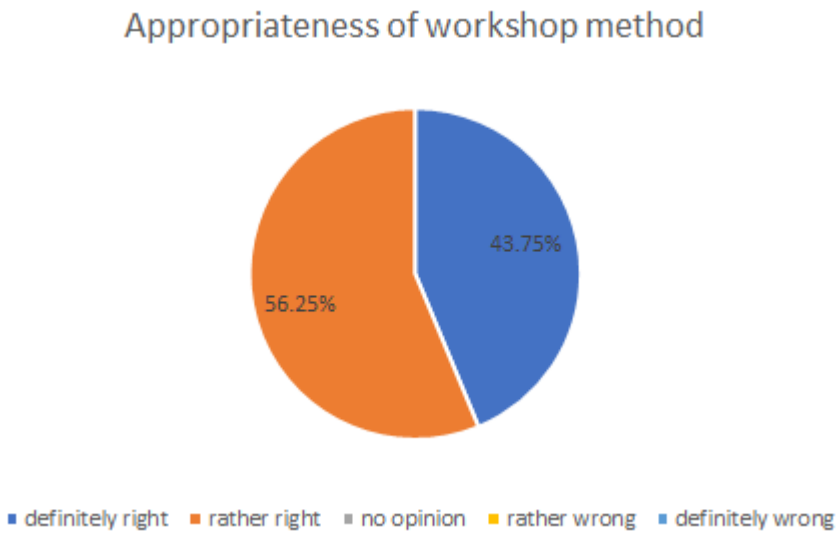
Figure 28: Austria, how do you evaluate the group discussion on video with audio on COVID-19 in terms of: (n: 16)



The evaluation of the second discussion round (videos with sound) is a bit more negative and diverse. The moderators have noticed during the event that the duration for the second discussion could have been a bit longer because sometimes there was not enough time to go into detail in each question. This is visible in case of the question about the 'time devoted to the discussion' where 4 out of 16 people did not have an opinion which can be interpreted as a polite way of telling the hosts to increase the duration. Neutral opinion (1 person in each case) was also expressed for the importance of the topic and the personal interest.

People were again the most satisfied with the competence of the moderators (14 persons giving a score of 5), followed by the involvement of participants (10 persons giving a score of 5), with the importance of the topic (9 persons giving a score of 5) and the time devoted to the discussion (8 persons giving a score of 5). As visibly, in each case, the majority or at least half of the people were fully satisfied. This is also true for the subjective personal satisfaction of and interest in the discussion round where 11 and 10 persons gave a perfect score of 5.

Figure 29: Austria, in your opinion, are such meetings the right or the wrong way to collect opinions on topics related to the ways of communicating the knowledge provided by scientists? (n: 16)



Finally, we wanted to inquire about the appropriateness of the workshop method as perceived by the participants. Since the workshop was not originally supposed to take place as a virtual meeting, this feedback was particularly important to us. The opinions were 100% positive only the level of agreement with the virtual method varied: 9 people said that it is rather right, while 7 persons said that it is definitely right to hold such online events for such science communication purposes.

9 participants have also left a comment:

- "The cooperation with Kurzgesagt has surprised me positively."
- "Great workshop! But I had the impression that almost only scientists (academics) participated - that is quite an enlightened audience. It would be interesting to do a similar workshop but with a different title, a different kind of invitation, specifically to get fringe opinions, …"
- "The time could be earlier for me. I think people with care obligations could be more accessible then. And maybe it would be exciting to address young people with the workshops and involve them. Perhaps institutions like the OeaD could help recruit them. Otherwise, thank you very much, it was a great moderation and a very pleasant discussion in a pleasant group."
- "The workshop was very interesting and entertaining. It would not have been a problem to extend the time a bit more, as the discussions were very exciting and

could have gone on for longer. The format was well chosen and the division into breakout rooms was very pleasant."

- "The summary of the group discussion results could be more systematic. The plenary presentation was rather subjective. Keyword: selective perception."
- "Thank you very much!"
- "Very exciting, thank you very much! I think it is important that people get the opportunity to participate in such topics."
- "I would be interested in your experience with ZOOM. Thank you very much, the workshop has given me inspiration for a future workshop with young people."
- "Thank you very much for organising this workshop!"

6.9 Conclusions emerging from the Austrian SciCom workshop

Overall, the Austrian workshop ran smoothly without any major issues from the technical side, also thanks to the 'pilot' showcase organised for registered participants not feeling confident enough or adept with the online platform (ZOOM). From the stakeholder engagement side, in spite of all the efforts of the organisers a more balanced representation of citizens was not achievable among the circumstances dictated by the ongoing pandemic. Even though there was an imbalanced representation of people with a university background, an engaging and diverse discussion was held in all groups, thanks to the different socio-economic backgrounds of the participants.

Within the first group discussions, the importance of the audio for understanding the subject was discussed – without audio, many participants guessed exactly the opposite as to the actual purpose of the videos. Because of the lack of audio sound, participants had to focus on the various memorable images and stylistic choices that raised a multitude of emotions in them. There was a lack of consensus in terms of emotions but a tendency was visible to deem (at least the first video) too 'aggressive' and therefore the credibility of the whole video was doubted. The difference between the two videos was underlined and the second video received a much better feedback in terms of perceived content, speed and presentation. However, a few participants expressed their doubts whether these videos could be made with science communication purposes at all.

Within the second group discussions, participants thought about the videos within their own personal and cultural frames: the importance of target groups was highlighted and they seemed to be a consensus across groups that these videos would only work for younger people in the Austrian context where people are used to more 'traditional' science

communication videos. They found the videos lacking in providing credible sources (narrators) in such a 'hot' and highly contested topic as COVID-19 (and its relation to 5G). The significance of referring to specific data sources, as well as not dismissing the differing opinions without more proper explanation (even though they might be unfounded conspiracy theories) was mentioned. Recommendations for improving the videos were given, starting from the categorization of stylistic choices deemed disturbing or ineffective for the science communication purposes (e.g. assertive tone, camera angles, rapid speed).

After carrying out the fact-checking exercise, the participants summarized their most important general recommendations which included among others a need for higher coherence between source and content of science communication, the proper identification of target group(s) and adherence of video style and content to their requirements, the need for a balance between "overdramatization" and "trustworthiness" as a conscious stylistic choice, the importance of providing reliable information sources (preferably from more sources and in more formats), the necessity of convincing people with different opinion in terms of COVID-19 (which might not be achieved through the 'dismissive' tone of the first video) and the importance of finding the right length and amount of information provided in the videos.

7. General conclusions

The global pandemic amplified the relevance of science in society and brought researchers to the public focus (Metcalfe et al. 2020). The workshops triggered a debate about various aspects of communication perception and investigated how the public perceives and evaluates science communication. Some key takeaways from the transcript analyses refer to the legitimacy and credibility of science, the powerful role of emotions in people's understanding of science, and the need for sharing the responsibility of communicating science between different stakeholders.

There was certainly an ongoing discussion, which emerged repeatedly across the groups, about what exactly scientific communication is; about what kind of science is being communicated, and above all, about what the image of science is that we have in mind when we turn our interest to science communication (Besley & Nisbet, 2013). The particular type of activity proposed with the analysis of video materials without and with audio made it possible to highlight some aspects concerning the credibility of the sources of information.

Several study participants had an idea of science as a reliable, certain and unambiguous source of truth. Yet, the presence of scientists and experts in the media - especially during the pandemic - is foregrounding the contradictions and imperfections of science, as well as the continuous validation process that underpins scientific activity. In turn, this is undermining participants' idea of science as a coherent, reliable and clear source of valid knowledge. This has generated bewilderment, and a perceived crisis of legitimacy, across members of the discussion subgroups.

Based on these considerations, perhaps, we should rethink not only what kind of scientific content we communicate, but also what kind of image of science we should be promoting. Rather than insisting on the objectivity of the scientific results, we should insist on the importance and reliability of the scientific method, and the robustness of the collective efforts set up by the scientific community. The analysis proposed within this report therefore highlights the role that scientists and experts have in the public scene and the fact that citizens often need reassuring figures and not too divergent opinions.

Another quite relevant issue, which is possibly common across the three countries participating, relates to the powerful role of emotions in science communication. It is widely acknowledged that their presence promotes attention and facilitates absorption of contents, but is also a widespread view that the same emotions can have

counterproductive effects. It is a cautious attitude, one that is mostly shared, even though many of the participants acknowledge that without emotions with which it is possible to connect they would easily switch off and change the source of information. In this perspective we can underline the numerous observations and criticisms made to the figure of an overly aggressive communicator present in the first video. Alternatively, in the case of public communication of science, more balanced and reassuring figures are preferred to talk about scientific issues, especially in the case of health.

Quite a few participants, across the groups, have expressed their awareness about their own responsibility as communicators of science. One participant (Italy) said, “we are all communicators, especially when we share information or news through social media”. This role, as they say, implies a great deal of responsibility, and it is necessary to promote this consideration. It is an important basis on which to build a call for more citizens’ involvement in (trustworthy, reliable and engaging) science communication. Are we facing a shift from citizen science to citizen science communication?

This type of question turned out to be relevant especially when the different contexts and cultural backgrounds of the citizens involved are considered. Among these differences we underline the importance of the gender perspective that emerged during the Dutch Workshop. In fact, very often in the public communication of science there is a tendency to perpetuate some stereotypical models such as the male authoritarian and the female one dedicated to care. The need to reconsider these differences and the fact that citizens are communicators emerged strongly during the workshops because today citizens have very powerful means and can be multipliers of news, even false, through social networks.

Finally, it must be considered that the scientific debate is very often polarized by social media. These means are in fact powerful but sometimes divisive because they tend to deal with complex and relevant issues through very reductive oppositions. The results achieved with these workshops will make it possible to address the proposed themes and the objectives of the Tresca project in order to identify the most effective mechanisms of mediated scientific debate and the elements to be considered in order to promote more effective communication.

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