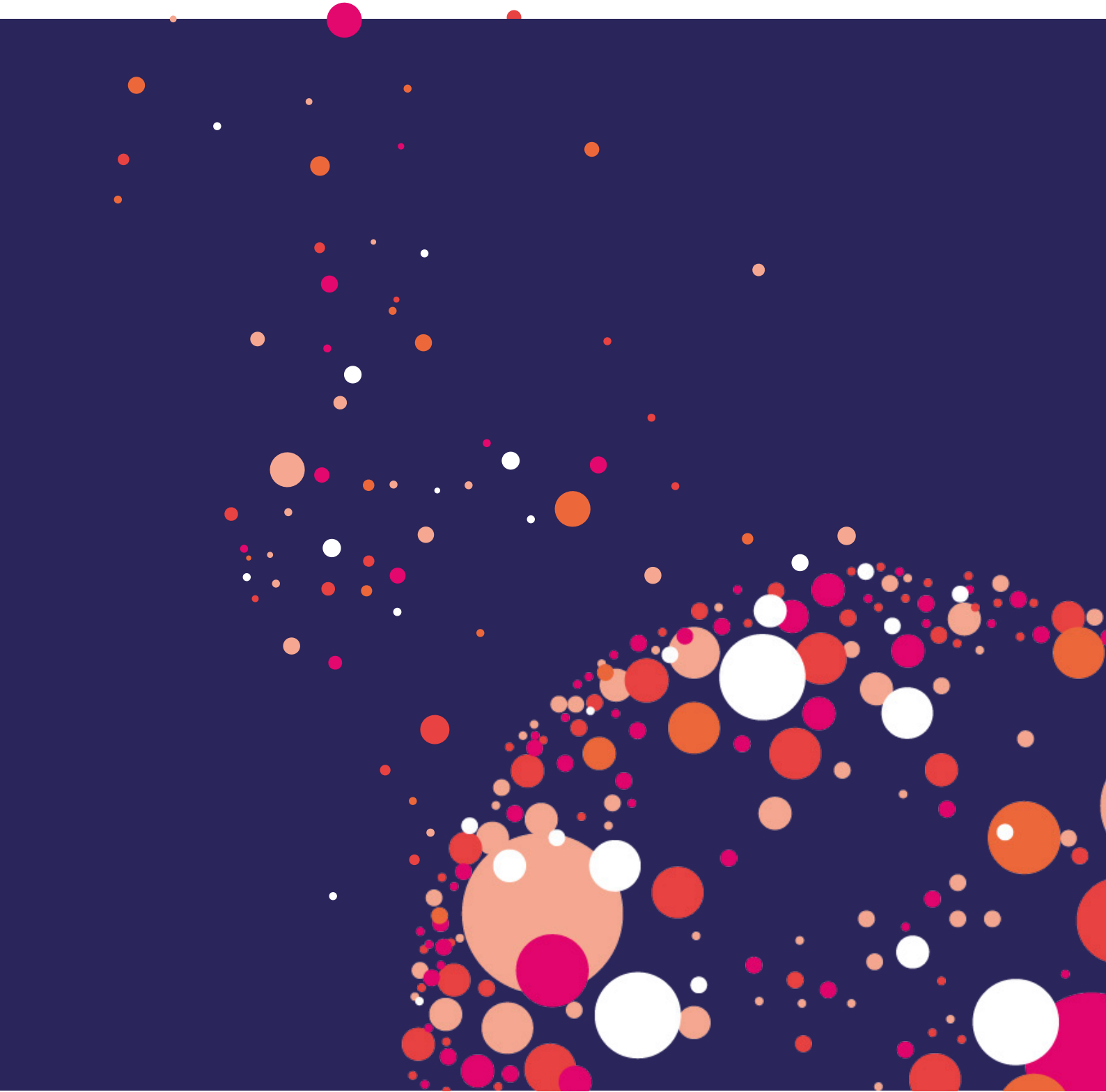
Global Relevance in Science Communication

WORKSHOP WORKBOOK



This workbook accompanies the GlobalSCAPE: Global Relevance in Science Communication workshop and contains everything you will require to join in with the sessions.

GlobalSCAPE
Global Science Communication and Perception

This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under grant agreement No. 101006436

Contents

1. Overview

This workshop supports science communicators in becoming more aware of global differences in audiences and contexts when planning and delivering communications that have potential for global/international impact. This means seeking out and paying attention to any evidence coming out of global (especially lesser heard voices) research and practice in Science Communication. It also involves guiding science communicators in how to adapt their approaches and formats to respond to diverse international needs and contexts (preferably in co-creation with local scientists, science communicators and experts/authorities in the local needs and contexts).

Who is this workshop for?

Science Communication practitioners, including journalists, scientists, educators, presenters, performers and other interested Science Communication professionals.

What is the overarching goal of this workshop?

For science communicators to incorporate more globally relevant practices into their work, to increase the applicability of Science Communication to a wider range of global contexts.

Why do we need this as science communicators?

Science and the varied publics for Science Communication straddle borders and interact on an increasingly global level. By adopting globally relevant practices we can better represent and respond to the interactions between science and societies around the world.

Objectives

01. **To increase attendees knowledge of how Science Communication across the globe compares to Science Communication in their own country**

02. **To increase attendees knowledge of factors that can affect the integration of Science Communication across nations and cultures**

03. **To increase attendees knowledge of how local contexts can be prioritised within global Science Communication**

04. **For attendees to consider how a 'glocal' approach can be applied within Science Communication to increase global relevance**

Note

This Global Relevance in Science Communication workshop is intended to be a means of bringing Science Communication practitioners from diverse fields and backgrounds into closer contact with each other and some of the research supporting the global field of Science Communication.

In this workshop we are all learners and each participant is considered as the expert in their own context. As such we encourage you to ask questions of each other and also be willing to share your own perspectives as much as possible to assist us all in reflecting upon our own practices alongside those of the global science communication community.

A short workshop is not enough to completely change our practices, and there are many fantastic workshops available for developing particular skills. Unfortunately some are more accessible than others, which is something we need to address together as a global community. This workshop is an opportunity to work towards that goal.

The intention is to plant the seeds for future growth, so many of the activities are just introductory. We hope that you will download these open access resources and take time to adapt and expand on any of the activities in a way that feels most relevant to your specific contexts.

2. Pre-Workshop Activities:

Opportunities, Challenges and Definitions

As a lead up to the workshop, there are two activities for you to complete. They are included here for reference purposes.

01. Think about the opportunities and challenges you have for communicating science in your region.

Please input your thoughts on the shared space at this link:
https://padlet.com/globalscicomm/ltzxzs14s3ovp5b

02. Share your favourite definition of science and feel free to also 'like' any other definitions that you see.

Please input your response on the shared space at this link:
https://padlet.com/globalscicomm/jaapwe8th97afxs6

3. Global Relevance in Science Communication

PART 1

Prior to the session you will have received a link to fill out a pre-workshop survey. Please return this to the facilitator(s) at least three days before your first session so they have an idea of your particular needs and can tailor the workshop where appropriate.

3.1 Workshop Agenda – Part 1

Guide times	Section	Section lengths
09:00 – 09:10	Introduction	10m
09:10 – 09:25	Opportunities and challenges	15m
09:25 – 09:40	Global comparisons	15m
09:40 – 09:55	Global Science Communication?	15m
09:55 – 10:05	**BREAK**	**10m**
10:05 – 10:40	Globalisation in Science Communication	35m
10:40 – 11:00	Globally relevant Science Communication	20m
11:00	**End Part 1**	

3.2 Icebreaker: Opportunities & Challenges

In groups, share some of the opportunities and challenges that you experience in your region or country when communicating science. The idea here is to get to know each other but also to share each other's experiences with Science Communication, which may be similar or very different.

Some space is provided below for you to note down any opportunities or challenges that other regions have in common with your region, or any other interesting factors that you find relevant. An example is given.

Region	Opportunities	Challenges	Notes
Madagascar	Increase in STEM associations	Slow AND expensive internet	Get in touch to share approaches...

3.3 Global Science Communication Indicators

Make a rough estimate of how many are currently in your country. In your own time, see if you can find more specific details from anywhere. This is good for getting more knowledgable about the presence and range of Science Communication in your country.

Indicator	0	1 – 5	6 – 9	> 10	Notes
Significant radio programs on science					
Significant television programs on science					
Science centres					
Science weeks					
Science festivals					
Awards for Science Communication					
Association of science writers					
Science communication journal					
Courses at universities					
Master's programs					
PhD programs					
National conferences					
Initiative or report on Science Communication					
National programs to support Science Communication					

3.4 12 Quality Indicators for Science Communication

Consider the following "Quality Indicators" for Science Communication (Olesk et al., 2021). Next to each one, note down whether you think your achievement is low, medium or high, and how you feel you could increase this within your own practice. If you do various different types of activity, then just choose one that you feel familiar with. Write whatever comes to mind at this stage, you can spend more time later thinking about it in more depth. A couple of things to consider overall is:

01. **Do you feel the type of Science Communication that you do presents any challenges to achieving these indicators?**

02. **Do they still appear relevant to your national, regional or local contexts (Considering they were produced by a European team)?**

Trustworthiness and scientific rigour					
Indicator	Description	L	M	H	Action you could take to improve
SCIENTIFIC	Communication is based on reliable, rigorous scientific information and sources. References to scientific sources are added.	○	○	○	
FACTUAL	Communication is accurate, objective and fact-checked.	○	○	○	
BALANCED	Comments by independent experts are provided to key claims. Voices of key stakeholders are represented.	○	○	○	
TRANSPARENT	Communication provides sufficient information about the scientific process. Communication is honest about the funding and affiliations.	○	○	○	

Presentation and style					
Indicator	Description	L	M	H	Action you could take to improve
CLEAR	The language is simple and accessible. Communication has a clear focus and outlines key messages.	○	○	○	
COHERENT AND CONTEXTUAL	Communication provides a wider context for topics. Communication is coherent in its structure and style.	○	○	○	
SPELLBINDING	Communication is emotionally engaging and makes full use of the format's capabilities.	○	○	○	
INTERACTING WITH THE AUDIENCE	Communication involves the audience in a dialogue and treats them respectfully.	○	○	○	

Connection with the society					
Indicator	Description	L	M	H	Action you could take to improve
PURPOSEFUL AND TARGETED	Communication has a clearly defined objective, is knowledgeable about its audience and tailored to reach the target groups.	○	○	○	
IMPACTFUL	Communication generates changes in the society and the individuals.	○	○	○	
RELATABLE	Communication addresses real life questions and problems, and relates scientific results to the everyday lives of people.	○	○	○	
RESPONSIBLE	Communication is socially or politically conscious and follows ethical standards.	○	○	○	

3.5 Global Spread of Formats

In groups, reflect on how one of three global Science Communication formats was able to successfully spread globally. Each group will have around 15 minutes to explore their format by reading through related websites, articles or research papers. We recommend you just look at the main websites first, as this is more realistic in the timeframe, but the other options are there if any of your group finds them useful. Links are here:

Source	Famelab	Pint of Science	Science Cafe/ Cafe Scientifique
Main websites of the format	*Brief history of Famelab* *Effect on young STEM researchers*	*Brief overview* *List of countries*	*Brief information and country map* *More information*
Articles/ Research papers	*Egypt/UK comparison (2016)*	*More in-depth report by founders of the format (2016)*	*Cross cultural adaptation (2009)*

Note

If you require more information, extra links to articles can be found in the appendices.

While looking at the information, try to answer the four main considerations related to globalisation, listed below. You don't need to get too in-depth with your assessment. It's just to get a general idea of how the formats function globally, so it's okay to just express a rough opinion based on what has been found or even your own experience with the format. You can record your thoughts on the following page.

If you get stuck for things to look for you could also consider differences in: Concept, aims, branding, dates/times, venues, global reach, locations, language, organisation, who funds it, which elements are fixed and which can be adapted.

Please record your initial responses to the following questions about the global spread of a Science Communication format. Check the Padlet link: *https://padlet.com/globalscicomm/template-how-can-science-communication-formats-spread-across-b017cqyi86tb7gzp*.

Why the activity might extend beyond a nation?

(i.e. what's the basic activity, goal and international appeal?)

How the activity might have extended beyond the nation?

(i.e. who organises it, how is it adopted/implemented locally, what language?)

The potential **effects** of the activity being international?

(i.e. who/what might benefit or be adversely affected AND how?)

How might **nationality and culture effect** the activity?

(i.e. Norms and attitudes of local publics, practitioners, scientists, support organisations/groups)

3.6 Post Session Activity

The following two exercises can help you achieve more focus with using some of the lessons from this workshop in your everyday work.

What are your personal goal(s) for communicating science?

Note

It can be really beneficial to frame your goals as SMART goals. If you are unfamiliar with this, there are links to a couple of relevant YouTube videos in the 'additional resources', if you want a quick overview. Although there is a lot of material available on the internet. Just search for "SMART goals".

How could being globally relevant help you to achieve YOUR goal(s)?

4. Global Relevance in Science Communication

PART 2

4.1 Workshop Agenda – Part 2

Guide times	Section	Section lengths
13:00 – 13:05	Introduction to Part 2	5m
13:05 – 13:20	'Glocal' Science Communication	15m
13:20 – 14:00	Prioritising the local	40m
14:00 – 14:10	**BREAK**	**10m**
14:10 – 14:45	7-steps for a 'glocal' approach to Science Communication	35m
14:45 – 15:00	Summary and Reflection	15m
15:00	**End Part 2**	

4.2 Local Lenses (5Ps)

This activity outlines the importance of localisation in Science Communication by focusing on five 'entities': Publics, practitioners, producers, places and pillars (5Ps).

As each one is introduced in turn, please use the space below to make notes on whatever comes to mind regarding how you feel that entity can positively (strengths) or negatively (limitations) affect attempts to communicate science in YOUR REGION. This is more about your personal knowledge and experiences of the specific situations in your region. At this stage just note down your general thoughts and don't worry if nothing springs to mind. We will have more time to explore the ideas further in groups afterwards.

While focusing on their **strengths** and **limitations**, also try to include HOW exactly you feel this impacts upon your work. So rather than just writing down "funding" for example, include, "...because we can't afford to get resources," OR "...to pay for our time, or travel" etc. It's also useful to think about what's in it for them. What motivations are there for them to support Science Communication? Our activities should bring mutual benefit for ALL involved.

(The 'Additional Resources" has a nice video on why localisation is important)

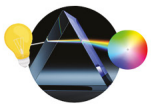
The 5Ps	Strengths (Helps communication)	Limitations (Hinders communication)	Motivations (Why would they get involved?
Publics			
Practitioners			
Producers			
Places			
Pillars			

4.3 7-step Guide for a 'glocal' Approach in Science Communication

Note

You don't have to achieve ALL steps when planning and delivering activities but considering as many as possible can help to increase global relevance.

A 7-step guide for a glocal approach to Science Communication



Goals	Specify your (SMART) communication goal and focus on a specific global audience.
Inform	Inform yourself about the intended audience and their contexts via available research, national surveys, reports or direct experience. Aim to identify opportunities and challenges for communicating with them.
Consult	If possible, seek consultation with one or more local representatives (i.e. 5Ps).
Partner	Consider partnership or co-creation with local representatives (i.e. 5Ps) to plan or deliver your activity
Activities	Select a suitable activity/format for engaging the intended audience.
Review	Assess your activity and adjust where needed. This can involve evaluation to see whether your goals were achieved. You could also reflect on the presence of the 12 Quality Indicators
Translate	If possible, translate written materials into local languages OR use international languages (i.e. English, Spanish, French, Arabic, Hindi, Mandarin, Portuguese...) for wider reach.

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Example:

GOALS:

Specify your (SMART) communication goal and focus on a specific global audience.

By this date next year, I will perform raps about science at Katowice science festival in Poland to audiences that may not usually be very interested in science. I aim to broaden my experiences and engage with more audiences that don't have english as their main language.

INFORM:

Inform yourself about the intended audience and their contexts via available research, national surveys, reports or direct experience. Aim to identify opportunities and challenges for communicating with them.

Many youngsters will have quite limited use of the English language, so I cannot assume that everything I say will be understood easily by them. Also some terms may be different in Polish than when used in English.

CONSULT:

If possible, seek consultation with one or more local representatives (i.e. 5Ps).

I will show my presentation to a local science communicator to see if there is anything that might be difficult to understand, or even perceived differently by some Polish publics.

PARTNER:

Consider partnership or co-creation with local representatives (i.e. 5Ps) to plan or deliver your activity.

I will aim to get in contact with a local musician or scientist(s) to see if they would be interested in working towards a new science song, that matches local contexts.

ACTIVITIES:

Select a suitable activity/format for engaging the intended audience.

The visitors to a science festival will generally be interested in science already but the schools day will have some that are not, as they are there as a school requirement. Despite varied interest levels in science, many youngsters listen to rap music, so performing raps about science seems like a good format to use to bridge the gap with some of that audience.

REVIEW:

Assess your activity and **adjust** where needed. This can involve **evaluation** to see whether your goals were achieved. You could also **reflect** on the presence of the **12 Quality Indicators.**

I want to include more references to famous Polish scientists. I will include Marie Curie and Nicolaus Copernicus but will use Marie Skłodowska–Curie, to include her Polish Surname. Also in Polish, Nicolaus Copernicus is spelt as Mikołaj Kopernik.

In reviewing the activity I realise that the raps are quite fast, which may present a problem for anyone that is not very experienced with the English language. To make it easier to take in the information that's not in their primary language, I will also include subtitles so the audience can read the words as well as hear them.

TRANSLATE:

If possible, **translate written materials** into **local languages** OR use **international languages** (i.e. English, Spanish, French, Arabic, Hindi, Mandarin...) for wider reach.

I will ask a native Polish speaker (that is also a scientist or science communicator if possible), if they can help me translate some of my titles and texts that are used in my presentation. If I have time and resources in the future, I would consider translating ALL of the subtitles into Polish.

Your turn:

Here is some space to consider how you might increase the global relevance of your own Science Communication activities, by using a 'glocal' approach.

GOALS:

Specify your (SMART) **communication goal** and focus on a **specific global audience.**

INFORM:

Inform yourself about the intended audience and their contexts via available **research**, national **surveys, reports** or **direct experience**. Aim to identify **opportunities** and **challenges** for communicating with them.

CONSULT:

If possible, **seek consultation** with one or more **local representatives** (i.e. 5Ps).

PARTNER:

Consider **partnership or co-creation** with **local representatives** (i.e. 5Ps) to plan or deliver your activity.

ACTIVITIES:

Select a **suitable activity/format** for engaging the **intended audience.**

REVIEW:

Assess your activity and **adjust** where needed. This can involve **evaluation** to see whether your goals were achieved. You could also **reflect** on the presence of the **12 Quality Indicators.**

TRANSLATE:

If possible, **translate written materials** into **local languages** OR use **international languages** (i.e. English, Spanish, French, Arabic, Hindi, Mandarin...) for wider reach.

5. Notes

6. Additional Resources

01. **Introduction to Science Communication** (YouTube course)
https://www.youtube.com/watch?v=e7AykRyW3QI

02. **Khan academy – How to write a SMART goal**
https://www.youtube.com/watch?v=U4IU-y9-J8Q

03. **Better than yesterday – Setting SMART Goal**
https://www.youtube.com/watch?v=PCRSVRD2EAk

04. **Localisation : What does it mean?**
(Viewed in a humanitarian context)
https://www.youtube.com/watch?v=Syj2zkJjqs4

05. **What is Science Communication?**
https://lifeomic.app.us.lifeology.io/viewer/lifeology/default/what-is-science-communication

06. **12 Quality Indicators for Science Communication: Guide for Science Communicators** (English)
https://questproject.eu/download/12-quality-indicators-for-science-communication-guide-for-science-communicators/

07. **How to Practice Culturally Relevant SciComm**
https://app.us.lifeology.io/viewer/lifeology/scicomm/how-to-practice-culturally-relevant-scicomm-en-US

08. **Science Communication in Multiple Languages Is Critical to Its Effectiveness**
https://www.frontiersin.org/articles/10.3389/fcomm.2020.00031/full

7. References

- Al-Rodhan, N. R. F., and Stoudmann, G. 2006. Definitions of Globalization: A Comprehensive Overview and a Proposed Definition. Geneva: Centre for Security Policy
- Anastasiou, D., Schäler, R. (2010), "Translating Vital Information: Localisation, Internationalisation, and Globalisation", Journal Syntheses
- Esselink, B. (2000). A practical guide to localization. Language International World Directory. *https://doi.org/10.1075/liwd.4*
- Gascoigne, T. (2020). Communicating Science. A Global Perspective. Ed. Toss Gascoigne et al.. 10.22459/CS.2020
- Guenther, L. and Joubert, M. (2017). 'Science Communication as a field of research: identifying trends, challenges and gaps by analysing research papers'. JCOM 16 (02), A02. *https://doi.org/10.22323/2.16020202*
- Khondker, H. H. (2005). Globalisation to glocalisation: A conceptual exploration. Intellectual Discourse, 13(2)
- Kurin, R. (2002). "The Globalization and Localization of Culture." In Bermuda Connections: Homecoming. 6–13. Hamilton: Ministry of Community Affairs & Sport
- Massarani, Luisa & Rocha, Mariana & Pedersoli, Constanza & Almeida, Carla & Amorim, Luis & Cambre, Martha & Nepote, Ana Claudia & Aguirre, Claudia & Rocha, Jessica & Gonçalves, Juliana & Cordioli, Laura & Flávia, Cordioli & Ferreira, Barros. (2017). Aproximaciones a la investigación en divulgación de la ciencia en América Latina a partir de sus artículos académicos
- Mejlgaard, N., Bloch, C., Ravn, T., Degn, L., Nielsen, M. (2012). Monitoring Policy and Research Activities on Science in Society in Europe (MASIS) : final synthesis report. European Commission, Directorate-General for Research and Innovation, Brussels
- Olesk, A., Renser, B., Bell, L., Fornetti, A., Franks, S., Mannino, I., Roche, J., Schmidt, A. L., Schofield, B., Villa, R. & et al (2021). Quality indicators for Science Communication: results from a collaborative concept mapping exercise. Journal of Science Communication, 20(03), A06. doi: 10.22323/2.20030206
- Roudometof, Victor. (2016). Glocalization: A Critical Introduction. New York: Routledge. DOI: 10.4324/9781315858296
- Schiele et al, (2021), Communicating Science: Heterogeneous, Multiform and Polysemic, DOI: 10.1007/978-981-16-5379-7_1 – In book: Science Cultures in a Diverse World: Knowing, Sharing, Caring)
- Trench, B and Bucchi, M. (2021)', Global spread of Science Communication: Institutions and practices across continents'. In Routledge handbook of public communication of science and technology, 3rd Ed, Routledge

8. Appendix

Global Science Communication formats – Additional links to literature.

Source	Famelab	Pint of Science	Science Cafe/ Cafe Scientifique
Main websites of the format	*Brief history of Famelab* *Effect on young STEM researchers*	*Brief overview* *List of countries*	*Brief information and country map* *More information*
Articles/ Research papers	*Egypt/UK comparison (2016)*	*More in-depth report by founders of the format (2016)*	*Cross cultural adaptation (2009)*
Articles/ Research papers	*Italy PR and guide (2021)*	*First in Asia (2017)*	*Analysis of effectiveness (2014)*
Articles/ Research papers/ YouTube link	*Famelab Spain* *Famelab Egypt* *Famelab International Final (2021)*	*African research to the public (2018)*	*Oman success story (2017)*
Articles/ Research papers (Open access)/ Webpage	*Malaysia 2022*	*Evaluation of Thailand event (2019)*	*Lockdown experience in Italy (2020)*

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Acknowledgements

GlobalSCAPE team would like to thank the following members of the GlobalScape Advisory Board for their inputs and feedback in the development of this workshop:

John C. Besley
(Ellis N. Brandt Chair of Public Relations at Michigan State University, USA)

Samir Dhurde
(Astronomer, Educator, Humanist at the Inter-University Centre for Astronomy & Astrophysics (IUCAA), IN)

Marina Joubert
(Science communication researcher at Stellenbosch University, ZA)

Paloma Zubieta López
(Head of the Department of Science Communication, Institute of Mathematics UNAM, MX)

GlobalSCAPE team would also like to thank the following individuals for their contributions to the development of this workshop:

Kelly Blumenthal, Carrie Boyce, Michael Creek, Daniël Dekkers, Edward Duca, Adrian Fenton, Derek Fish, Jacqueline Goldstein, Robert Inglis, Sarah Hyder Iqbal, Ipsa Jain, Eric Jensen, Elspeth Kenny, Tshepiso Maroga, Luisa Massarani, Moumita Mazumdar, Anina Mumm, Marieke Navin, Frank Nuijens, Mohamed Elsonbaty Ramadan, Joanne Riley, Jessica Rohde, Upasana Sarraju, Roderick Schoon, Mhairi Stewart and *John Wood*

A final thank you to the *Science Communication & Society Department* and the *Astronomy & Society Group at Leiden University.*

GlobalScape Consortium

Trinity College Dublin, The University of Dublin · ecsite European Network Science Centres & Museums · Universiteit Leiden, The Netherlands · Qualia Analytics, Technology-Enhanced Research Solutions · 20 YEARS SciDevNet · SPRINGER NATURE

This project has received funding from
the European Union's Horizon 2020
Research and Innovation programme
under grant agreement No. 101006436

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