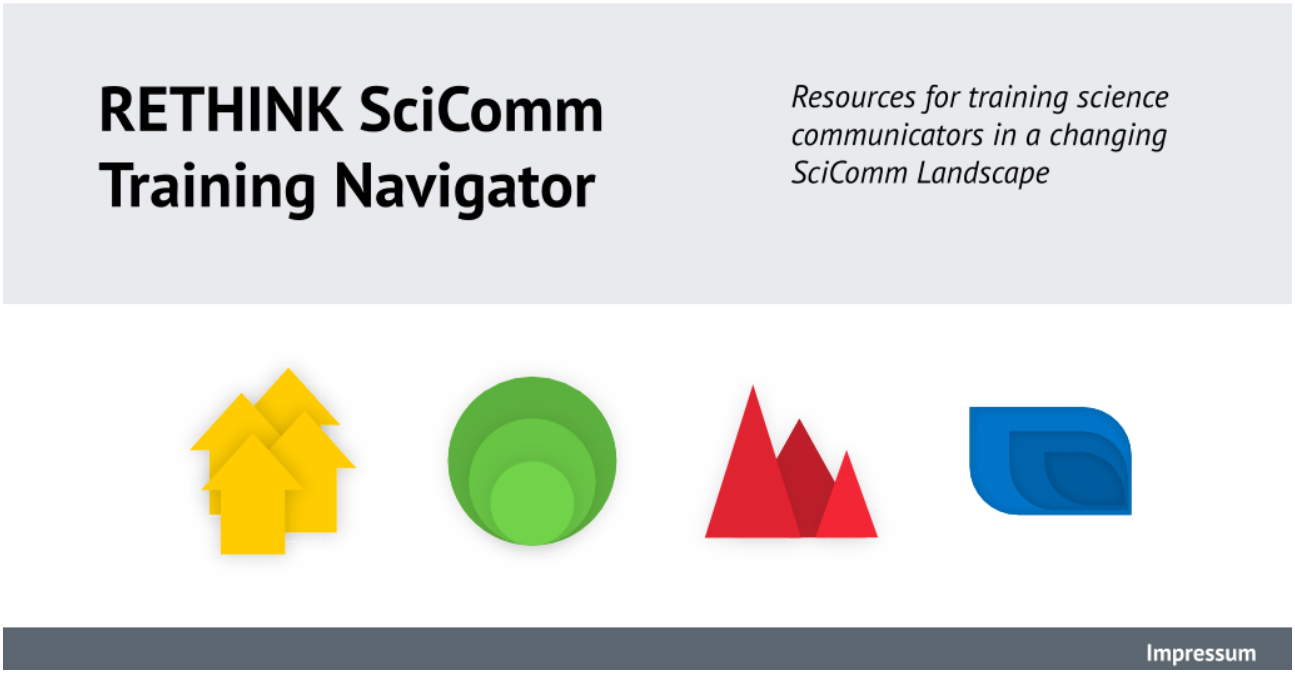
The RETHINK SciComm Training Navigator

Instruments for implementation and testing, including a train the trainer program, training resources applicable to different types of training (Deliverable 3.4)



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Content

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Executive Summary

This report presents Deliverable 3.4 of the RETHINK project and relates to “Instruments for implementation and testing, including a train the trainer program, training resources applicable to different types of training”.

It outlines the underlying ideas of RETHINK that have led to the train the trainer program and related resources, summarizes the overall approach and describes the steps taken to develop a **RETHINK SciComm Training Navigator.** Moreover, the report contains a brief description of the Navigator’s content and structure and explains how to use it.

The final outcome of this deliverable is an accessible interactive pdf that helps trainers and students to reflect on the outcomes of the project and encourages them to experiment with new conditions for science communication. It can be accessed and dowloaded here.

The report is related with deliverable D3.3 “Report and Digital Flyer on Quality Criteria and Indicators for Science Communication Assessment”. The short educational videos produced in this context are part of the training resources. Moreover, it builds upon D3.1 “Analysis of the status quo and demands for science communication training” and applies the competence framework that has been developed as an outcome of this research.

The training resources are a part of RETHINK´s outreach strategy and are meant to remain available as a resource for all science communication professionals, trainers, researchers and students, also after the end of the project.

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1. Background – Enhancing training for a changing science communication landscape

The Scicomm Training Navigator has been developed as part of the Horizon-2020 funded project RETHINK. The RETHINK team, which consisted of members across Europe, has carried out research into how science is communicated online on vital issues such as climate change, health and artificial intelligence. RETHINK started from the observation that the science communication landscape is changing fundamentally – especially, due to the digital transformation. For instance, online media give access to various sources and opportunities for providing and receiving science information far in excess of traditional media sources and quality guidelines. With the fast developments of digital media, science communication has turned into a patchwork of actors and content. At the downside, this has led to challenges, as sources are sometimes unrecognisable and credibility is often difficult to assess. However, the new science communication landscape offers also opportunities for reflective practice to learn about those developments, to investigate the new interfaces between science, media and society and to change our understanding of science communication practices. Against this backdrop, RETHINK aimed at uncovering (some) blind spots and to contribute to a comprehensive understanding of science communication in the context of ongoing change.

To discover the new and emerging science communication landscape, the RETHINK team among others has conducted research to look at who is writing and talking about science online, whether it's scientists, PR-people, journalists, bloggers, vloggers or influencers and how they are doing it. RETHINK has also been interested in how members of the public who aren't experts make sense of the science they read or hear about online. And they have tried to figure out whether there is "good" and "bad" science communication and how its quality can be improved.

To bring their insights across, the RETHINK team developed this SciComm Training Navigator. Science communication training should provide students with a view of changes taking place in science communication today. Students can then learn how to adapt their communication practices to this evolving science communication landscape. We provide a competence framework that suggests how students can be equipped with required competences to deal with the developements of science communication. Moreover, core findings of the RETHINK research are outlined and build the basis for training resources and guidelines that help to navigate through the changing science communication landscape.

RETHINK research conducted in this context refers to approaches to reaching underserved science communication audiences (WP1), identifying strategies to open up sensemaking practices (WP2) and the definition and promotion of science communication quality (WP3). The training navigator will serve as a practical resource for trainers by using the background of RETHINK research and linking it with training

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methods for science communication courses. The resources can be used in a broad range of training settings from science communication graduate programs on Bachelor and Master level over further education directed at science communication professionals to workshops and trainings for scientists. Moreover, the RETHINK SciComm Training Navigator will serve as a means for communication, outreach and public engagement for the RETHINK project as it will be integrated into the RETHINK homepage. In this way, the training resources are instructive and accessible for both trainers and students of science communication.

This report gives an overview about the development and advancement of the RETHINK SciComm Training Navigator.

2. Milestones – Development history

The RETHINK SciComm Training Navigator is the outcome of an iterative working process and builds upon three years of work in the context of the project RETHINK. Most importantly, the following steps led to the development of the navigator:

1) Research conducted on science communication training in the context of WP3, initial development of a competence framework for science communication education (2019)

2) Research on
"Barriers and opportunities to reaching audiences" (WP1)
"Citizens' sensemaking of science" (WP2)
"Science communication quality" (WP3) (2019-2021)

3) Workshops with the RETHINK team as a basis for the training resources, selection of research topics to use, identification of demands, gathering of first ideas for resources (Nov 2020/Jan 2021)

4) Development of an initial toolbox with training resources (March 2021)

5) Piloting and testing of selected resources at the partnering universities VU (Amsterdam) and UWE (Bristol) (May/June 2021) and evaluation

6) Survey with Rethinkerspaces (international and interdisciplinary hubs involved in the project RETHINK) to comment on the resources (June/July 2021)

7) Workshops with members from the Rethinkerspaces, the European Sounding Board (international experts with experience in research, science communication practice and policy) and the RETHINK team on how to further develop and improve the resources (July 2021)

8) Call for the production of an interactive pdf for the resources and commissioning (Sept/Oct 2021)

9) Production and publication of the "RETHINK SciComm Training Navigator" (December 2021)

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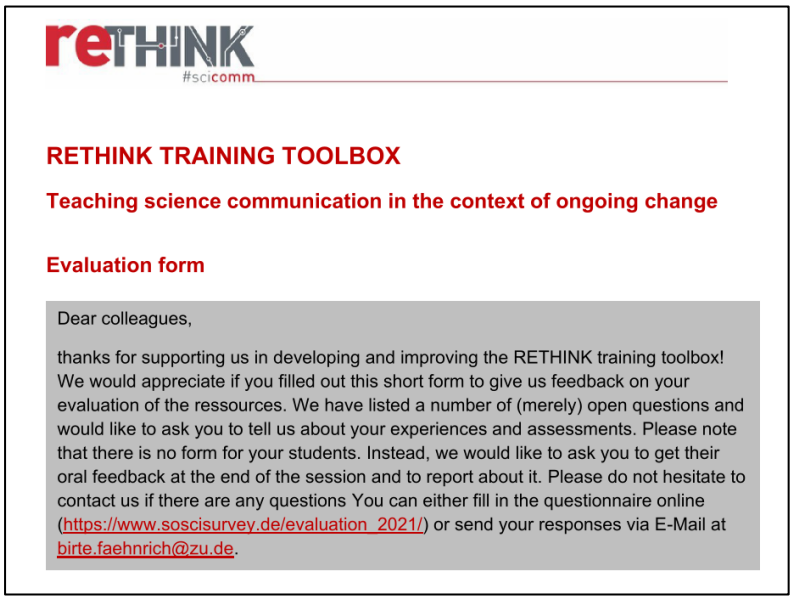
In the following, we explain two milestones of the process in more detail which contributed most to the development of the Navigator.

2.1 Piloting of the training resources and evaluation process

From May to June 2021 RETHINK partners VU and UWE tested selected resources in four science communication classes which are part of the science communication graduate programs (Bachelor and Master). More precisely, VU tested teaching resources in the thematic context of "sensemaking" as this reflects the expertise in research of WP2. UWE tested the resources in the context of "reaching audiences" and "science communication quality". For evaluating the piloting we used an online form and/or interviews in which we asked trainers for their experiences and assessment regarding the usefulness and applicability of resources as well as their general feedback.



reTHINK #scicomm

RETHINK TRAINING TOOLBOX

Teaching science communication in the context of ongoing change

Evaluation form

Dear colleagues,

thanks for supporting us in developing and improving the RETHINK training toolbox! We would appreciate if you filled out this short form to give us feedback on your evaluation of the ressources. We have listed a number of (merely) open questions and would like to ask you to tell us about your experiences and assessments. Please note that there is no form for your students. Instead, we would like to ask you to get their oral feedback at the end of the session and to report about it. Please do not hesitate to contact us if there are any questions You can either fill in the questionnaire online (https://www.soscisurvey.de/evaluation_2021/) or send your responses via E-Mail at birte.faehnrich@zu.de.

Fig. 1. Introduction of the evaluation form for piloting and testing the resources at VU and UWE.

We received feedback (form/e-mail/oral feedback) from all partners who supported us with piloting the resources. Overall, resources were assessed as being useful to address different competence levels. For instance, it was confirmed that tools to introduce themes give a good overview and that the different tasks are helpful to reflect on the issues in focus and to facilitate discussion. Even though trainers indicated that the tools could provide more examples for specific tasks.

On July 13th we organised an online workshop with members of the European Sounding Board and Rethinkerspace members in partnering countries to get feedback on the training resources. In general, we asked whether the materials were useful, who could benefit from the resources and how those target groups

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could be approached. Moreover, we were interested in how the resources could be improved. The discussions in small groups showed that participants' feedback was that the manual covered a lot of relevant aspects and provided a clear framework. Moreover, it was indicated that the training resources are applicable for different training contexts, such as for educating science communication students, science communication practitioners, or journalists. Mostly mentioned in terms of improving the tools was the structure of the manual. Participants suggested to present content differently, for example to strenghten interactivity and to use more visual elements.

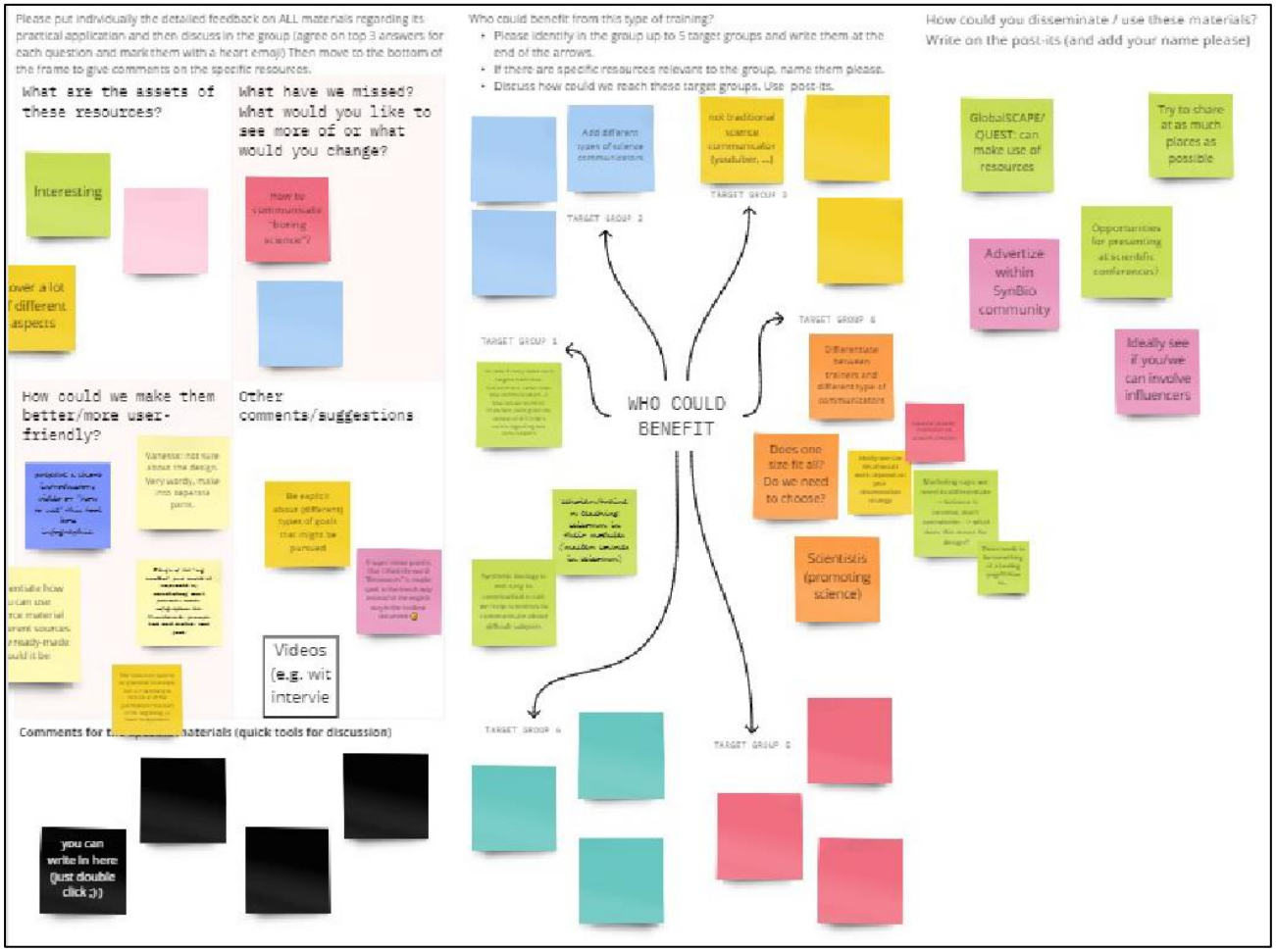

Fig. 2. Miroboard of the workshop with the European Sounding Board.

Moreover, it was mentioned that the usability of the manual would profit from a clearer structure. To receive further feedback, we invited all Rethinkerspace members in June/July 2021 to comment on the training resources through a questionnaire. The approach as well as the manual were rated as applicable and easy to use. Moreover, participants indicated that the resources could be presented with more guidance for users. In addition, outreach would profit if resources were shown on a public website. Besides, the outcome of the questionnaire was that public dissemination could be increased by translating the resources in different

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languages. Therefore, budget has been made available (as part of an amendment of RETHINK) to translate some of the training resources.

Based on the feedback on training resources gathered in the evaluation process, we revised the document substantially to improve usability and accessibility for teachers and students in different training contexts. To this end, we also decided to transform the manual into an interactive navigator.

2.2 Production of the training navigator

We contacted several producers and designers to commission the production of the navigator. Overall, we received 3 bids from Germany and the UK. After a detailed review of proposals and talks with the different suppliers, the offer by Sheraz Khan (Designer/Cartographer, Berlin) was chosen. Sheraz Khan has long experience in realizing science communication projects. The production of the pdf was commissioned by Zeppelin University, the German partner within RETHINK responsible for WP3.

To start the development meetings between RETHINK team members and the designer were organized to specify the purpose and the technical requirements of the training navigator. On this basis, we decided for the production of interactive pdf that meets the following requirements:

- The used option should allow to be independent from external providers,
- The document lasts for a long time without update,
- Free to host and sharable,
- Does not rely too heavily on the internet,
- Does not require people to install new apps or programs,
- Possibility to integrate the resources on the RETHINK website and further partner websites.

The later production process of the pdf with several meetings between the RETHINK team and the designer involved:

1) Planning and writing of introduction texts,
2) Discussion and preparation of summaries of findings of the relevant RETHINK research,
3) Preparation of descriptions for training tasks,
4) Deciding for a layout for the pdf,
5) Providing and embedding further required materials, e.g. project logo and templates,
6) Planning the technical integration into the RETHINK homepage,
7) Final proofreading and finishing of the document.

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3. Using the navigator

The RETHINK SciComm Training Navigator is created as an interactive pdf that is structured as a manual. The purpose was to make the Navigator as interactive and intuitive as possible so that users can get to the resources and information with little effort. The Navigator is designed much like a website but functions nearly completely offline. At the top of each page you can find a menu with the main sections of the Navigator. Landscape icons (mountain, tree, pool, house) are used to navigate through the different sections(see Figure 3). Buttons are used to open a pdf with more information or a resource to use – most of them can be accessed offline.

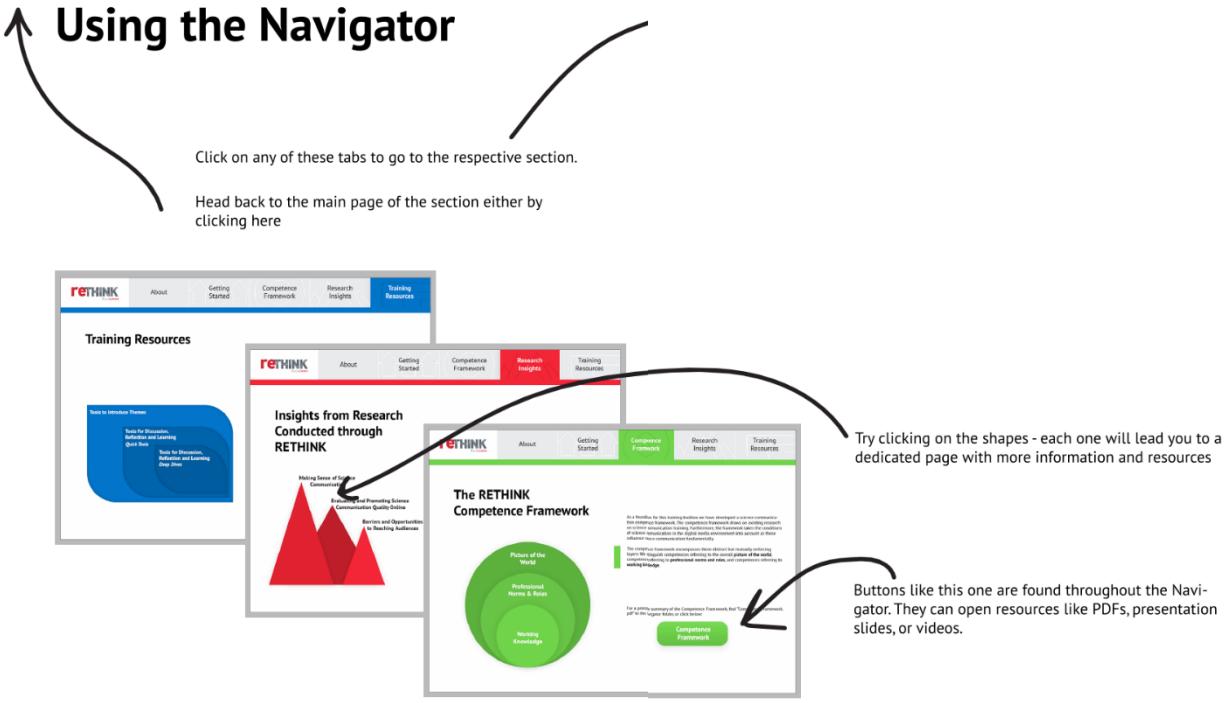

Fig. 3. Introduction how to use the navigator.

The interactive pdf can be read either from top-down or by navigating through the different sections or tabs. We used different colours for each section (see figure 4) and structured the text with short teaser descriptions of the section (Figure 3). Besides, we aimed at a better overview and access to the training resources for trainers.

Figure 4: Header of the interactive training kit pdf with main tabs

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The RETHINK website will be used as a "landing page" where the training materials will be available for download as a Zip-file. Users can also click on links in the pdf and directly download information sheets and training guides.

4. Structure of the Training Navigator

Different icons and colours were used to navigate users through this guideline and the different parts. To help with understanding the scope of RETHINK's research and outcomes, a symbolic shortform – the "landscape of science communication" – was used.

The about section (yellow house) contains general information about the RETHINK project. It explains the perspective of digital science communication in the context of changing information environments. Moreover, the section shows the objective of the Navigator, which is to involve trainers and students in a conversation about future directions of science communication practice and research. For getting an overview and orientation, users of the toolbox might navigate to the "getting started" section that explains how the document can be used. In addition, the main sections of the manual are explained in short and FAQs are answered.

Fig. 5 Landscape icons used to structure the navigator

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The red mountains stand for RETHINK insights and research findings. From here users can gain a perspective and an overview of the realm of science communication today. The section gives a brief summary of the research conducted within RETHINK and will hint at consequences, challenges and open questions linked to our observations.

The green tree stands for the model of competence levels of science communicators. Moving from its outermost layers to its center, it presents different aspects of the skills needed by a communicator and related demands of science communication training. Science communication training not only aims to enhance science communication skills, but also to enable students to fulfil prospective roles as professional communicators.

Finally, informed by both the insights and competence levels, the blue (resource) pool reaches from shallow areas to deep dives in helping train communicators. The resources refer to one or more of the insights and can be categorized under different competence levels. They can be applied individually or in combination and can be easily adapted to users' needs.

5. Content overview

5.1 Competence Framework and Insights

The competence framework highlights our basic ideas of training objectives and relies on two competence frameworks developed by Pieczka (2002) and Baram-Tsabari and Lewenstein (2017)[1] that we have integrated and developed further. We briefly explain three different levels of competence that should be strengthened in the context of training: 'picture of the world', 'professional norms and roles', and 'working knowledge' (see Figure 6). The competence framework is embedded within shorter texts in the pdf and a more extensive text version can be accessed via a link to the landing page. Another section shows research insights of RETHINK where the main research topics, barriers and opportunities to reaching audiences, sense making in science communication and assessing and promoting science communication quality are presented. Again, research findings are shown in short in the pdf and additionally with more information on "fact sheets" that can be downloaded.

1 Baram-Tsabari, A., & Lewenstein, B. (2017). Science communication training: what are we trying to teach? International Journal of Science Education, Part B, 7(3), 285–300. https://doi.org/10.1080/21548455.2017.1303756

Pieczka, M. (2002). Public relations expertise deconstructed. Media, Culture & Society, 24(3), 301–323. https://doi.org/10.1177/016344370202400302

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Fig. 6: Intro page for RETHINK competence framwork and research insights

Besides, we aimed at a better overview and access to the training materials for trainers. The section "training resources" integrates different training tools that can be used in different training contexts, for example single-training sessions or for more sessions up to the term of a course. Guides to training methods are available in a short and long version. Additional working material, e.g. fact sheets or case studies can be downloaded by clicking the buttons in the pdf or by opening them in the related zip-folder in the explorer.

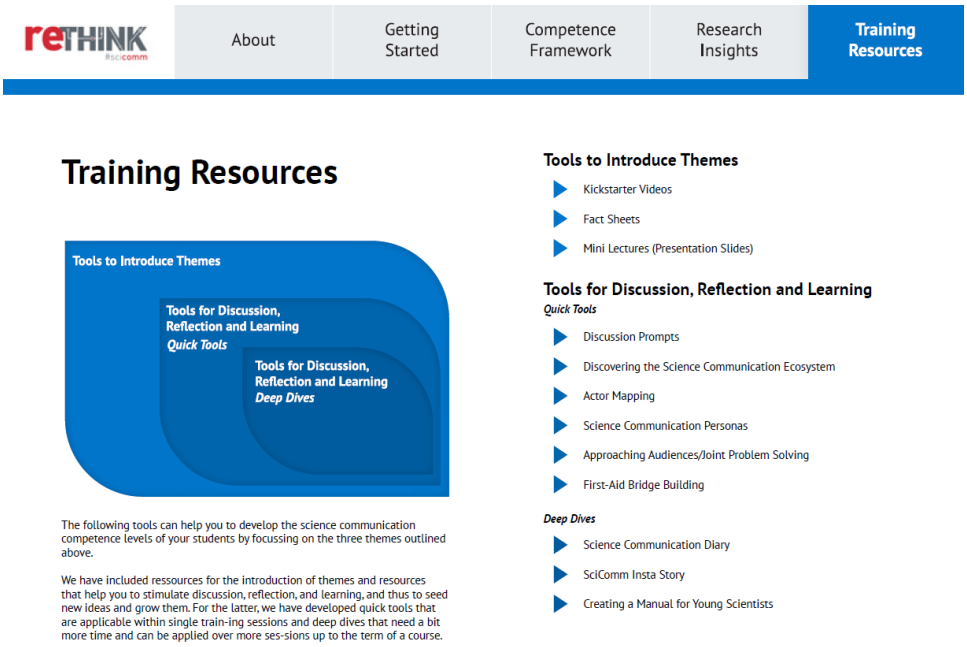

Fig. 7. Teaser page training resources

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5.2 Tools to introduce themes

The training resources are divided into two broad categories. The objectives of the tools to introduce themes are

- to give an overview of the issue in focus
- to outline problems and relevance
- to give an overview on terms and definitions
- to develop a basis for discussion and reflection
- can either be used in shorter or longer training sessions

The training resources described in this report include for example short videos that were presented in D3.3 and can be used as a “kickstarter” for supporting trainers and educators in introducing new themes in their courses.

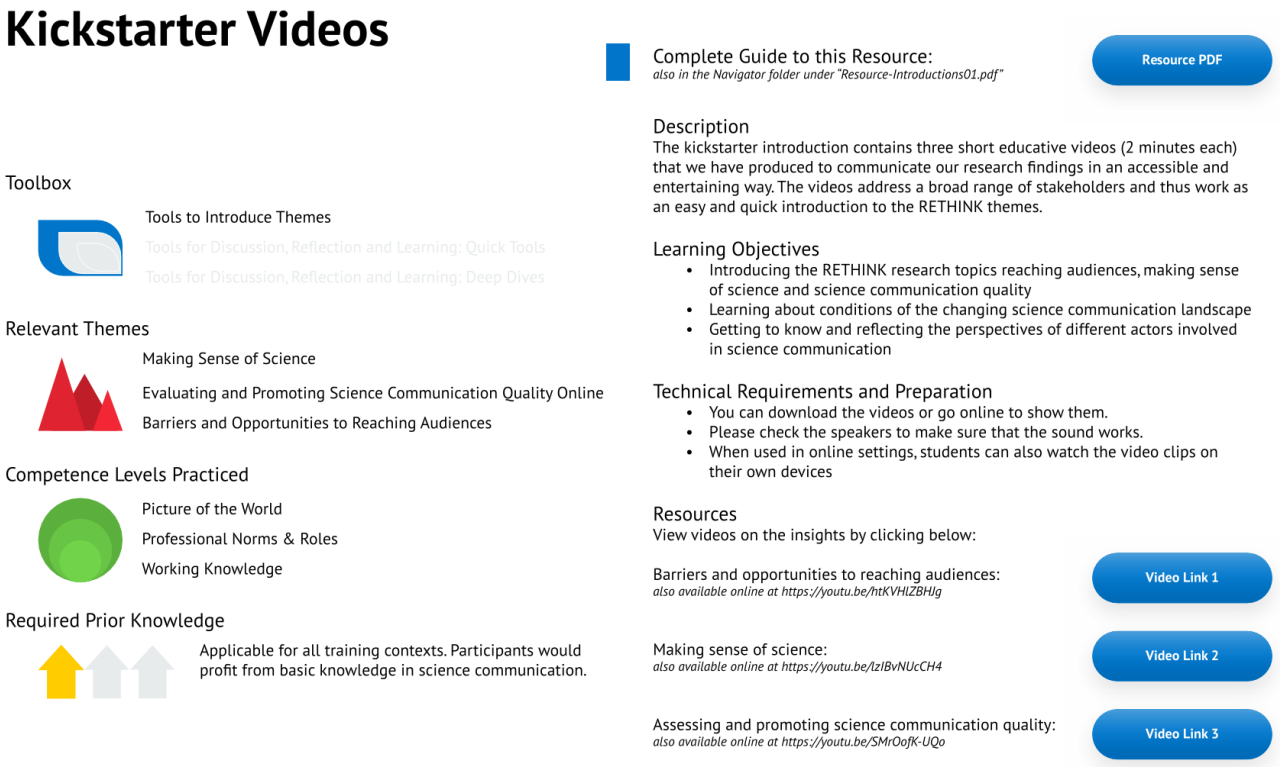

Fig. 8. Guide Kickstarter videos including landscape scheme and links (buttons)

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5.3 Tools for discussion, reflection and learning

Tools for discussion, reflection and learning can be used

- to prompt discussions
- to enable reflection
- to stimulate learning and development

Discussion tools are divided in quick tools for short term involvement or deep dives for longer projects.

Quick tools

- summary of resources that are applicable within a session of a course
- resources are developed for specific competence levels and themes
- quick tools can be used in combination with every introductory resource and also in combination with deep dives and in flexible order

An example for a quick tool to facilitate discussion are discussion prompts that can be used in plenum or smaller groups. The prompts provide a starting point for activities concerning the developments of the science communication environment and refer to the three RETHINK themes “reaching audiences“, “making sense of science“ and “science communication quality“.

Deep dives

- resources are developed for specific competence levels and themes
- single or group activities, takes place during or outside of course times
- students report their findings during the training sessions in front of the plenary and/or submit a report.
- deep dives can be used in combination with every introductory resource and also in combination with quick tools.
- can be applied over more sessions up to the term of a course

For deep dives trainers have to consider that those exercises require students to have a solid knowledge of scientific working and writing and basic knowledge of the science communication landscape. For instance, the activity of "creating a manual for young scientists" gives students the opportunity to reflect on their science communication and public engagement activities and to give advice for other former scientists (and students).

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When conducting this task, students themselves can thus become ‘trainers’ for science communication and take up an important role as multipliers to improve science communication quality and promote professionalism.

6. Outlook

The RETHINK SciComm Training Navigator will be available for download on the RETHINK homepage after the end of the project at least until April 2025. Moreover, the resources can be accessed on the RETHINK partner´s websites after that time. As science communication trainers and practitioners will be able to use the training resources extensively by then, we are confident that the dialogue about science-society interactions and developments for training and teaching will be enduring.

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