

DELIVERABLE 4.3

APPENDIX 1

ParCos Trainer Training Package “Card Deck”



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 872500.



**“ParCos – Participatory Communication of Science”
A HORIZON 2020 RESEARCH AND INNOVATION ACTION**

Consortium: Lappeenranta-Lahden teknillinen yliopisto (FI, coordinator), Katholieke Universiteit Leuven (BE), Vlaamse Radio- en Televisieomroeporganisatie (BE), and Knowledge West Media Centre LBG (UK).

Webpage: <https://parcos-project.eu>

Duration: 1/2020 – 12/2022

Grant: H2020-872500 (Call H2020-SwafS-2019-1)

Contact (co-ordinator):

Asst. Professor Antti Knutas & Asst. Professor Annika Wolff
LUT University
e-mail: parcos.project@lut.fi

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1 APPENDIX

Dear reader,

please find an intermediary version of our card deck in the subsequent pages exported as PDF and suitable for printing. Our intention that this is an online, living document. We hope that you will navigate to the project site to find the latest, up to date version of the deck.

The project site can be found at <https://parcos-project.eu/train-the-trainers-package/>

Sincerely,

the ParCos project team

Materials can be cited as follows.

Van Even P., Zaman B., and Hannes K. (2022). Brief report on the ParCos Trainer training package. Deliverable draft 4.3 APPENDIX 1 of the Horizon 2020 project ParCos, EC grant agreement no. 872500, Lappeenranta, Finland.

This card deck is intended as a reflection tool and contains guidelines for the design and evaluation of science stories.

These cards can be used individually, but there is also a group option. When the story is translated and curated by a team, the cards can be a way of exchanging expertise and brainstorm collectively.

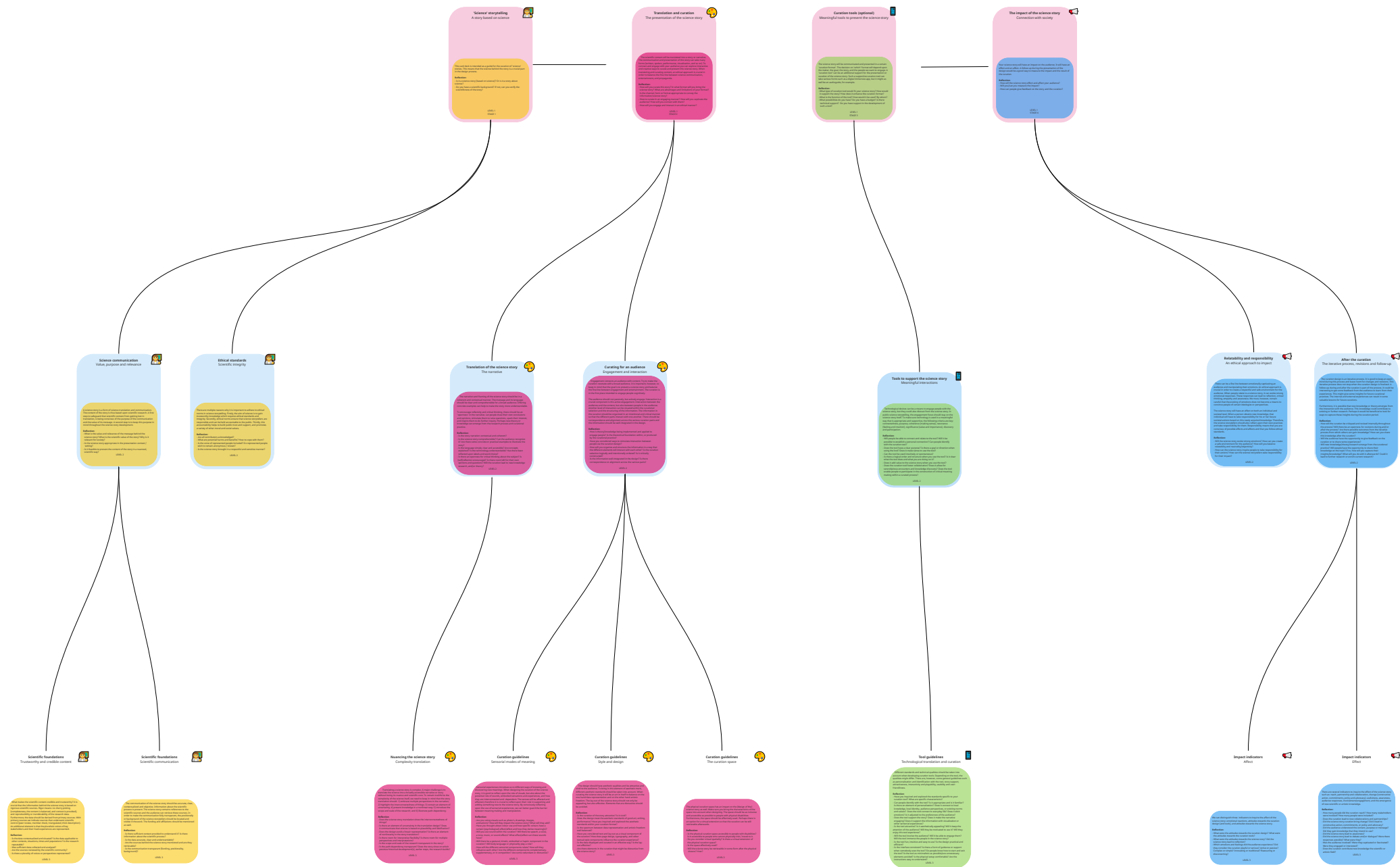
Importance of not focusing solely on engagement with the audience to avoid 'propaganda' or 'misinformation by distortion'. The line between science communication and propaganda is very fragile. A good balance between engagement and information is thus crucial and can be a slippery slope.

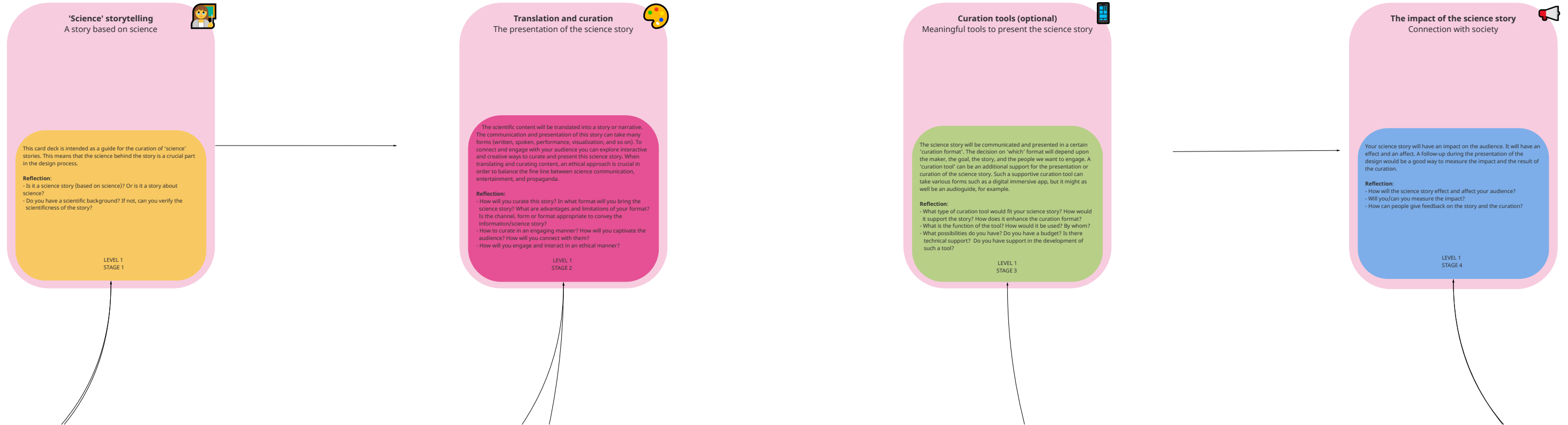
Not all science story intermediaries have a background in science. In practice, the design of a science story is often made by different people with different expertise and data analysts. Researchers usually combine their forces with curators, developers, and artists. It is therefore possible that in the design process of a participatory science story, different experts will use different parts of this evaluation framework. It is not necessarily a problem if an expert only uses the part in which he or she has expertise of. However, it is important that the other parts of the framework are also represented and used to design and curate a proper science story. This wholeness of the framework should thus be safeguarded in the overall design process.

When entertainment becomes the focus (at the expense of the scientific grounding of the story), it is better to call it a story about science instead of a science story.

Fine line between a science story and propaganda. Ethical conduct is crucial: engage and inform, but not manipulate.

Avoidance of fragmentation. Layer 1 is for everyone to see the connections.





Science communication

Value, purpose and relevance

A science story is a form of science translation and communication. The content of the story is thus taken upon scientific research. A first step to safeguard that scientific content from getting lost in translation, is being conscious of the purpose of the communication and the value of its message. A second step is to keep this purpose in mind throughout the science story development.

Reflection:
- What is the value and relevance of the message behind the science story? What is the scientific value of the story? Why is it relevant for society?
- Is the science story appropriate in the presentation context / setting?
- Is it feasible to present the content of the story in a nuanced, scientific way?

LEVEL 2

Ethical standards

Scientific integrity

There are multiple reasons why it is important to adhere to ethical norms in science storytelling. Firstly, the aim of science is to gain trustworthy knowledge which requires ethical standards and integrity. Secondly, ethical norms ensure that science storytellers are responsible and can be held accountable to the public. Thirdly, this accountability helps to build public trust and support, and promotes a variety of other moral and social values.

Reflection:
- Are all contributors acknowledged?
- What are potential harms and benefits? How to cope with them?
- Is the voice of represented people included? Do represented people wish to remain anonymous / named?
- Is the science story brought in a respectful and sensitive manner?

LEVEL 2

Translation of the science story

The narrative

The narration and framing of the science story should be in a coherent and contextual manner. The message and its language should be clear and comprehensible for a broad audience. Offering concrete examples can help to make the story more understandable.

To encourage reflexivity and critical thinking, there should be an 'openness' in the narrative. Let people draw their own conclusions and opinions, stimulate them to take questions, spark their interest, and inspire them to do further inquiry. Perhaps, new theory or knowledge can emerge from the research process and curatorial practice.

Reflection:
- How is theory/knowledge being implemented and applied to engage people? Is the theoretical foundation within, or produced by the curatorial practice?
- Have you considered ways to stimulate interaction between people via the curatorial tool?
- Does the tool have a clear purpose? Is there a goal or direction when using the tool? Does it make sense to use the tool?
- Can the tool be used creatively or spontaneously?
- Is there a logical order and structure when you use the tool? Is it clear what the tool does and what you are doing on it?
- Does it add value to the science story when you use the tool?
- Does the curatorial tool foster collaboration? Does it allow for serendipitous encounters and knowledge discovery? Does the tool enable people to participate in the construction of critical meaning making within a curated process?

LEVEL 2

Curating for an audience

Engagement and interaction

Engagement connects an audience with content. To make the curatorial resonate with a broad audience, it is important, however, to keep in mind that the goal is to present a science story and balance the fine line between engagement and entertainment. The curator is in the first place intended to engage people cognitively.

The audience should not passively, but actively engage. Interaction is a crucial component in this active engagement. Interaction between the audience and the content, but also between people in the audience. Another level of interaction can be designed within the curatorial selection and the structuring of the information. The information in the curatorial should be organized in an intentional and critical manner so that the different participants with one another. There should be correspondence and alignment across the various curatorial parts and the information should be well-integrated in the design.

Reflection:
- How is theory/knowledge being implemented and applied to engage people? Is the theoretical foundation within, or produced by the curatorial practice?
- Have you considered ways to stimulate interaction between people via the curatorial tool?
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- Does it add value to the science story when you use the tool?
- Does the curatorial tool foster collaboration? Does it allow for serendipitous encounters and knowledge discovery? Does the tool enable people to participate in the construction of critical meaning making within a curated process?

LEVEL 2

Tools to support the science story

Meaningful interactions

Technological devices can be a means to engage people with the science story, but they should also distract from the science story. In public science storytelling, the engagement focus should stay on the science story itself. To make sure technology is used in a meaningful way that is appropriate and supportive, the following criteria are key: connectedness, purpose, coherence (making sense), resonance (feeling and emotion), significance (value and importance), discovery and participation.

Reflection:
- Will people be able to connect and relate to the tool? Will it be possible to establish a personal connection? Can people identify with the curatorial tool?
- Does the tool have a clear purpose? Is there a goal or direction when using the tool? Does it make sense to use the tool?
- Can the tool be used creatively or spontaneously?
- Is there a logical order and structure when you use the tool? Is it clear what the tool does and what you are doing on it?
- Does it add value to the science story when you use the tool?
- Does the curatorial tool foster collaboration? Does it allow for serendipitous encounters and knowledge discovery? Does the tool enable people to participate in the construction of critical meaning making within a curated process?

LEVEL 2

Relatability and responsibility

An ethical approach to impact

There can be a fine line between emotionally capturing an audience and manipulating their emotions. An ethical approach is, therefore, to create a respectful and safe environment for the audience. When people relate to a science story, it can make strong emotional responses. These responses can lead to reflection, critical thinking, empathy and awareness, the must, however, remain careful that the evoking of emotions does not become a means to convince people of certain ideologies or perspectives.

The science story will have an effect on both an individual and societal level. When a person obtains new knowledge, that individual will have to take responsibility for his or her future societal actions based on this newly acquired knowledge. Therefore, the science storytellers should also reflect upon their own practices and take responsibility for them. Responsibility means that you are conscious of possible effects and affects and that you follow ethical standards.

Reflection:
- Will the science story evoke strong emotions? How can you create a safe environment for the audience? How will you balance or contextualize and neutralize/deflect it?
- How can the science story inspire people to take responsibility for their actions? How can the science storytellers take responsibility for their impact?

LEVEL 2

After the curation

The iterative process, revisions and follow-up

The curatorial design is an iterative process. It is good to keep an open mind during this process and leave room for changes and revisions. This iterative process does not stop when the curatorial design is finalized. A follow-up during and after the curation is part of the process. It could be interesting to get some feedback from the audience to learn from their experiences. This might give some insights for future curatorial practices. The internal and external experiences can result in some valuable lessons for future curators.

Furthermore, it is possible that new knowledge or theory emerges from the interaction with the audience. This knowledge could contribute to existing or further research. Perhaps it would be beneficial to look for ways to capture these insights during the curatorial period.

Reflection:
- How will the curatorial be critiqued and revised internally throughout the process? Will there be an openness for revisions during and/or after the process? Are there possible outcomes from the iterative process from which others can gain knowledge? How can you share this knowledge after the curatorial?
- Will the audience have the opportunity to give feedback on the curatorial or to share some experiences?
- Will new knowledge/theory/research emerge from the curatorial practice? Will people have the opportunity to share their knowledge on the topic? If so, how will you capture their insights/knowledge? What will you do with it afterwards? Could it lead to further research or which current research?

LEVEL 2

Scientific foundations

Trustworthy and credible content



What makes the scientific content credible and trustworthy? It is crucial that the information behind the science story is based on rigorous scientific sources. Higher means no cherry picking (completeness, the context is balanced, and context is provided), and reproducibility or transferability of the research data. Furthermore, the data should be derived from primary sources. With primary sources, we indicate sources that underwent scientific control (peer review, member check, triangulation, thick description). An additional element is that the pluralistic voices of key stakeholders and their lived experiences are represented.

Reflection:

- Is the data contextualized and situated? Is the data applicable to other contexts, situations, times, and populations? Is the research repeatable?
- Was sufficient data collected and analyzed?
- Are the sources reviewed by the scientific community?
- Is there a plurality of voices or perspectives represented?

LEVEL 1

Scientific foundations

Scientific communication



The communication of the science story should be accurate, clear, contextualized and objective. Information about the scientific process is present. The science story contains references to the scientific sources and the audience can retrieve these sources. In order to make the communication fully transparent, the positionality or background of the science storytellers should be located and visible in the work. The funding and affiliations should be mentioned as well.

Reflection:

- Is there sufficient context provided to understand it? Is there information about the scientific process?
- Is the data accurate, clear and understandable?
- Are the sources behind the science story mentioned and are they retrievable?
- Is the communication transparent (funding, positionality, background)?

LEVEL 2

Nuancing the science story

Complexity translation



Translating a science story is complex. A major challenge is to translate the science into a broadly accessible narrative or story without losing its nuance and scientific care. To remain faithful to the complexity of the science itself, we need to keep in mind that the story translation should: 1) embrace multiple perspectives in the translation; 2) highlight the interconnectedness of things; 3) contain an element of uncertainty; 4) present knowledge in a nonlinear way; 5) introduce the scope and scale of the research; and 6) illustrate path-dependency.

Reflection:

- Does the science story translation show the interconnectedness of things?
- Is there an element of uncertainty in the translation design? Does it communicate that science is based on probability and falsification?
- Does the design avoid a linear representation? Is there an element of nonlinearity in the story translation?
- Is there room for interpretive flexibility? Is there room for multiple perspectives and interpretations?
- Is the scope and scale of the research transparent in the story?
- Is the path-dependency transparent? Does the story show in which previous historical development(s), earlier steps, the research builds?

LEVEL 3

Curation guidelines

Sensorial modes of meaning



Sensorial experiences introduce us to different ways of knowing and discovering new meanings. When designing the curation of the science story, it is good to reflect upon the role of visuals, but also about the potential role of sounds, embodied experiences and experiences, and how they are interconnected and dependent. The senses will be affected and affected, therefore it is crucial to reflect upon their role in supporting and adding something new to the science story. By continuously reflecting upon the use of sensorial experience, we can better guard the barrier between meaning making and manipulation.

Reflection:

- Are you using visuals such as photos, drawings, images, animations? How will they impact the science story? What will they add?
- Have you thought about colour use and how specific colours have a certain (psychological) effect? How do they derive meaning?
- Will you use sound within the curation? Will there be speech, a voice, a tone, music, or sound effect? What effect does it have on these sounds have?
- Will there be a gestural, kinetic, embodied or haptic component in the curation? Will there be language or physical play a role?
- How will the different sensorial components relate? How will they influence each other? Are the different components complementary, supplementary, or in competition? Are some redundant or distracting?

LEVEL 4

Curation guidelines

Style and design



The design should have aesthetic qualities and be attractive and used to the audience. To bring in the element of aesthetic care, different aesthetic standards should be taken into account. When curating the science story it will be an art in itself to balance on the one hand data representation and on the other hand artistic freedom. The layout of the science story should not only be appealing, but also effective. Elements that are distracting should be avoided.

Reflection:

- Is the curation of the story attractive? Is it visual?
- Does the design meet the aesthetic standards of good art, writing, performance? Have you required and explored the aesthetic standards within your curation format?
- Is the spectrum between data representation and artistic freedom well balanced?
- Have you considered text and layout as a visual component of the curation? How does page design, typography, and other textual style components influence the curation experience?
- Is the data displayed and curated in an effective way? Is the layout effective?
- Are there elements in the curation that might be distracting from the science story?

LEVEL 5

Curation guidelines

The curation space



The physical curation space has an impact on the (design of the) science story as well. Make sure you bring the characteristics of the space into account when designing. The space should be as inclusive and accessible as possible to people with physical disabilities. Furthermore, the space should be effectively used. Perhaps there is an option for a virtual extension so that the curation can be still renewable afterwards.

Reflection:

- Is the physical curation space accessible to people with disabilities? Is it accessible to people who cannot physically visit? How do you make it accessible?
- Do you consider virtual accessibility? Is there a virtual extension of the physical curation space?
- Is the space effectively used?
- Will the science story be renewable in some form after the physical closure? How?

LEVEL 6

Tool guidelines

Technological translation and curation



Different standards and technical qualities should be taken into account when developing curation tools. Depending on the tool, the qualities might differ. There are, however, some general guidelines, such as personalization and identification with the tool, story support, attractiveness, interactivity and playability, usability and user-friendliness.

Reflection:

- Have you required and explored the standards specific to your curation tool? What are specific characteristics?
- Can people identify with the tool? Is it appropriate and is it familiar? Is there an element of personalization? Does it connect to local knowledge, local identity, audience perspectives, or existing norms and values?
- Does the tool connect to everyday life? Does it elicit emotions? Is it adjusted to the preferences of the audience?
- Does the tool support the story? Does it make the narrative engaging? Does it support the information with visualization or other sensorial experiences?
- Is the tool attractive? Is it aesthetically appealing? Will it keep the attention of the audience? Will they be motivated to use it? Will they enjoy this tool experience?
- Will the tool involve the audience? Will it be able to engage them? Will the tool involve the people in the science story?
- Is the tool fun, intuitive and easy to use? Is the design practical and efficient?
- Is the interface consistent? Is there a form of guidance or support when somebody uses the tool? Do people know how to start and exit the tool? Is the tool as minimalist as possible? Are unnecessary elements avoided? Is the physical setup comfortable? Are the instructions easy to understand?

LEVEL 7

Impact indicators

Affect



We can distinguish three indicators to inquire the effect of the science story: emotional reactions, attitudes towards the curation design (and tools), and attitudes towards the science story.

Reflection:

- What were the attitudes towards the curation design? What were the attitudes towards the science story?
- What were the attitudes towards the science story? Did the science story lead to reflection?
- Which emotions and feelings did the audience experience? Did they consider the curation playful or serious? Active or passive? Complex or simple? Innovative or traditional? Reassuring or disconcerting?

LEVEL 8

Impact indicators

Effect

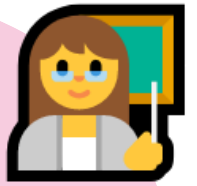


There are several indicators to inquire the effect of the science story such as: reach, partnership and collaboration, change (constructive action, commitments, policy and advocacy), usefulness, awareness, audience responses, involvement (engagement), and the emergence of new scientific or artistic knowledge.

Reflection:

- How many people did the curation reach? How many stakeholders were involved? How many people were included?
- Does the curation lead to new collaborations and partnerships?
- Did the science story curation bring change? Did it lead to constructive action, commitments, or policy and advocacy?
- Did the audience understand the content, purpose or message? Did they gain knowledge that they intend to use?
- Did the science story lead to awareness?
- Did the science story lead to debate and/or dialogue? Were there responses possible? What were they?
- Was the audience involved? Were they captivated or fascinated?
- Were they engaged or interested?
- Does the curation contribute new knowledge the scientific or artistic field?

LEVEL 9



'Science' storytelling

A story based on science

This card deck is intended as a guide for the curation of 'science' stories. This means that the science behind the story is a crucial part in the design process.

Reflection:

- Is it a science story (based on science)? Or is it a story about science?
- Do you have a scientific background? If not, can you verify the scientificness of the story?

LEVEL 1
STAGE 1



Translation and curation

The presentation of the science story

The scientific content will be translated into a story or narrative. The communication and presentation of this story can take many forms (written, spoken, performance, visualization, and so on). To connect and engage with your audience you can explore interactive and creative ways to curate and present this science story. When translating and curating content, an ethical approach is crucial in order to balance the fine line between science communication, entertainment, and propaganda.

Reflection:

- How will you curate this story? In what format will you bring the science story? What are advantages and limitations of your format? Is the channel, form or format appropriate to convey the information/science story?
- How to curate in an engaging manner? How will you captivate the audience? How will you connect with them?
- How will you engage and interact in an ethical manner?

LEVEL 1
STAGE 2





Curation tools (optional)

Meaningful tools to present the science story

The science story will be communicated and presented in a certain 'curation format'. The decision on 'which' format will depend upon the maker, the goal, the story, and the people we want to engage. A 'curation tool' can be an additional support for the presentation or curation of the science story. Such a supportive curation tool can take various forms such as a digital immersive app, but it might as well be an audioguide, for example.

Reflection:

- What type of curation tool would fit your science story? How would it support the story? How does it enhance the curation format?
- What is the function of the tool? How would it be used? By whom?
- What possibilities do you have? Do you have a budget? Is there technical support? Do you have support in the development of such a tool?

LEVEL 1
STAGE 3

The impact of the science story

Connection with society



Your science story will have an impact on the audience. It will have an effect and an affect. A follow-up during the presentation of the design would be a good way to measure the impact and the result of the curation.

Reflection:

- How will the science story effect and affect your audience?
- Will you/can you measure the impact?
- How can people give feedback on the story and the curation?

LEVEL 1
STAGE 4



Science communication

Value, purpose and relevance



A science story is a form of science translation and communication. The content of the story is thus based upon scientific research. A first step to safeguard that scientific content from getting lost in translation, is being conscious of the purpose of the communication and the value of its message. A second step is to keep this purpose in mind throughout the science story development.

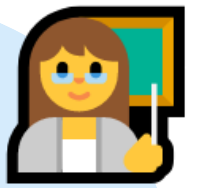
Reflection:

- What is the value and relevance of the message behind the science story? What is the scientific value of the story? Why is it relevant for society?
- Is the science story appropriate in the presentation context / setting?
- Is it feasible to present the content of the story in a nuanced, scientific way?

LEVEL 2

Ethical standards

Scientific integrity



There are multiple reasons why it is important to adhere to ethical norms in science storytelling. Firstly, the aim of science is to gain trustworthy knowledge which requires ethical standards and integrity. Secondly, ethical norms ensure that science storytellers are responsible and can be held accountable to the public. Thirdly, this accountability helps to build public trust and support, and promotes a variety of other moral and social values.

Reflection:

- Are all contributors acknowledged?
- What are potential harms and benefits? How to cope with them?
- Is the voice of represented people included? Do represented people wish to remain anonymous / known?
- Is the science story brought in a respectful and sensitive manner?

LEVEL 2



Relatability and responsibility

An ethical approach to impact

There can be a fine line between emotionally captivating an audience and manipulating their emotions. An ethical approach is crucial in order to create a respectful and safe environment for the audience. When people relate to a science story, it can evoke strong emotional responses. These responses can lead to reflection, critical thinking, empathy and awareness. We must, however, remain careful that the evoking of emotions does not become a means to convince people of certain ideologies or perspectives.

The science story will have an effect on both an individual and societal level. When a person obtains new knowledge, that individual will have to take responsibility for his or her future societal actions based on this newly acquired knowledge. Therefore, the science storytellers should also reflect upon their own practices and take responsibility for them. Responsibility means that you are conscious of possible effects and affects and that you follow ethical standards.

Reflection:

- Will the science story evoke strong emotions? How can you create a safe environment for the audience? How will you balance relatability and neutrality/objectivity?
- How can the science story inspire people to take responsibility for their actions? How can the science storytellers take responsibility for their impact?



After the curation

The iterative process, revisions and follow-up

The curation design is an iterative process. It is good to keep an open-mind during this process and leave room for changes and revisions. This iterative process does not stop when the curation design is finalized. A follow-up during and after the curation is part of the process. It could be interesting to get some feedback from the audience to learn from their experiences. This might give some insights for future curational practices. The internal and external experiences can result in some valuable lessons for future curations.

Furthermore, it is possible that new knowledge or theory emerges from the interaction with the audience. This knowledge could contribute to existing or further research. Perhaps it would be beneficial to look for ways to capture these insights during the curation period.

Reflection:

- How will the curation be critiqued and revised internally throughout the process? Will there be an openness for revisions during and/or after the process? Are there possible outcomes from the iterative process from which others can gain knowledge? How can you share this knowledge after the curation?
- Will the audience have the opportunity to give feedback on the curation or to share some experiences?
- Will new knowledge/theory/research emerge from the curational practice? Will people have the opportunity to share their knowledge on the topic? If so, how will you capture their insights/knowledge? What will you do with it afterwards? Could it lead to further research or enrich current research?



Tools to support the science story

Meaningful interactions

Technological devices can be a means to engage people with the science story, but they could also distract from the science story. In public science storytelling, the engagement focus should stay on the science story itself. To make sure technology is used in a meaningful way that is appropriate and supportive, the following criteria are key: connectedness, purpose, coherence (making sense), resonance (feeling and intuition), significance (value and importance), discovery and participation.

Reflection:

- Will people be able to connect and relate to the tool? Will it be possible to establish a personal connection? Can people identify with the curation tool?
- Does the tool have a clear purpose? Is there a goal or direction when using the tool? Does it make sense to use the tool?
- Can the tool be used intuitively or spontaneously?
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LEVEL 2

Translation of the science story

The narrative



The narration and framing of the science story should be in a coherent and contextual manner. The message and its language should be clear and comprehensible for a broad audience. Offering concrete examples can help to make the story more understandable.

To encourage reflexivity and critical thinking, there should be an 'openness' in the narrative. Let people draw their own conclusions and opinions, stimulate them to raise questions, spark their interest, and inspire them to do further inquiry. Perhaps new theory or knowledge can emerge from the research process and curational practice.

Reflection:

- Is the story narration contextual and coherent?
- Is the science story comprehensible? Can the audience recognize it? Are there some concrete or practical examples to illustrate the story?
- Is the language simple, clear and accessible? Are concepts explained? Is the terminology understandable? Has there been reflected upon labels and word choice?
- Is there an openness for critical thinking about the subject? Is (self)reflection encouraged? Is there room left for their own opinions and questions? Will the curation lead to new knowledge research, and/or theory?

LEVEL 2





Curating for an audience

Engagement and interaction

Engagement connects an audience with content. Try to make the curation resonate with a broad audience. It is important, however, to keep in mind that the goal is to present a science story and balance the fine line between engagement and entertainment. The curation is in the first place intended to engage people cognitively.

The audience should not passively, but actively engage. Interaction is a crucial component is this active engagement. Interaction between the audience and the content, but also between people in the audience. Another level of interaction can be situated within the curational selection and the structuring of the information. The information in the curation should be organized in an intentional and critical manner so that the different parts interact with one another. There should be correspondence and alignment across the various curation parts and the information should be well-integrated in the design.

Reflection:

- How is theory/knowledge being implemented and applied to engage people? Is the theoretical foundation within, or produced by the curational practice?
- Have you considered ways to stimulate interaction between people via the curation design?
- How will you organize and structure the information in a way that the different elements will interact with each other? Is the curation selection logically and intentionally ordered? Is it critically constructed?
- Is the information well-integrated in the design? Is there correspondence or alignment across the various parts?

LEVEL 2



Scientific foundations

Trustworthy and credible content



What makes the scientific content credible and trustworthy? It is crucial that the information behind the science story is based on rigorous scientific sources. Rigor means: no cherry picking (completeness, the content is balanced, and context is provided), and reproducibility or transferability of the research data. Furthermore, the data should be derived from primary sources. With primary sources we indicate sources that underwent scientific control (peer review, member check, triangulated, thick description). An additional element is that the pluralistic voices of key stakeholders and their lived experiences are represented.

Reflection:

- Is the data contextualized and situated? Is the data applicable to other contexts, situations, times and populations? Is the research repeatable?
- Was sufficient data collected and analyzed?
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Scientific foundations

Scientific communication



The communication of the science story should be accurate, clear, contextualized and objective. Information about the scientific process is present. The science story contains references to the scientific sources and the audience can retrieve these sources. In order to make the communication fully transparent, the positionality or background of the science storytellers should be located and visible in the work. The funding and affiliations should be mentioned as well.

Reflection:

- Is there sufficient context provided to understand it? Is there information about the scientific process?
- Is the data accurate, clear and understandable?
- Are the sources behind the science story mentioned and are they retrievable?
- Is the communication transparent (funding, positionality, background)?

Nuancing the science story

Complexity translation



Translating a science story is complex. A major challenge is to translate the science into a broadly accessible narrative or story without losing its nuance and scientific core. To remain truthful to the complexity of the science itself, we need to keep in mind that the story translation should: 1) embrace multiple perspectives in the narration; 2) highlight the interconnectedness of things; 3) contain an element of uncertainty; 4) present knowledge in a nonlinear way; 5) introduce the scope and scale of the research; and 6) illustrate path-dependency.

Reflection

- Does the science story translation show the interconnectedness of things?
- Is there an element of uncertainty in the translation design? Does it communicate that science is based on plausibility and falsification?
- Does the design avoid a linear representation? Is there an element of nonlinearity in the story translation?
- Is there room for interpretive flexibility? Is there room for multiple perspectives and interpretations?
- Is the scope and scale of the research transparent in the story?
- Is the path-dependency transparent? Does the story show on which previous historical development(s), earlier steps, the research builds?

LEVEL 3



Curation guidelines

Style and design

The design should have aesthetic qualities and be attractive and vivid to the audience. To bring in this element of aesthetic merit, different aesthetic standards should be taken into account. When curating the science story it will be an art in itself to balance on the one hand data representation and on the other hand artistic freedom. The lay-out of the science story should not only be appealing, but also effective. Elements that are distractive should be avoided.

Reflection:

- Is the curation of the story attractive? Is it vivid?
- Does the design meet the aesthetic standards of good art, writing, performance? Have you inquired and explored the aesthetic standards within your curation format?
- Is the spectrum between data representation and artistic freedom well balanced?
- Have you considered text and lay-out as a visual component of the curation? How does page design, typography, and other textual style components influence the curation experience?
- Is the data displayed and curated in an effective way? Is the lay-out effective?
- Are there elements in the curation that might be distractive from the science story?

LEVEL 3



Impact indicators

Affect

We can distinguish three indicators to inquire the affect of the science story: emotional reactions, attitudes towards the curation design (and tools), and attitudes towards the science story.

Reflection:

- What were the attitudes towards the curation design? What were the attitudes towards the curation tools?
- What were the attitudes towards the science story? Did the science story lead to reflection?
- Which emotions and feelings did the audience experience? Did they consider the curation playful or serious? Active or passive? Complex or simple? Innovating or traditional? Reassuring or disconcerting?



Impact indicators

Effect

There are several indicators to inquire the effect of the science story such as: reach, partnership and collaboration, change (constructive action, commitments, policy and advocacy), usefulness, awareness, audience responses, involvement/engagement, and the emergence of new scientific or artistic knowledge.

Reflection:

- How many people did the curation reach? How many stakeholders were involved? How many people were included?
- Does the curation lead to new collaborations and partnerships?
- Did the science story curation bring change? Did it lead to constructive action, commitments, or policy and advocacy?
- Did the audience understand the content, purpose or message? Did they gain knowledge that they intend to use?
- Did the science story lead to awareness?
- Did the science story lead to debate and/or dialogue? Were there responses possible? What were they?
- Was the audience involved? Were they captivated or fascinated? Were they engaged or interested?
- Does the curation contribute new knowledge the scientific or artistic field?

LEVEL 3

Translation and curation

The presentation of the science story



The scientific content will be translated into a story or narrative. The communication and presentation of this story can take many forms (written, spoken, performance, visualization, and so on). To connect and engage with your audience you can explore interactive and creative ways to curate and present this science story. When translating and curating content, an ethical approach is crucial in order to balance the fine line between science communication, entertainment, and propaganda.

Reflection:

- How will you curate this story? In what format will you bring the science story? What are advantages and limitations of your format? Is the channel, form or format appropriate to convey the information/science story?
- How to curate in an engaging manner? How will you captivate the audience? How will you connect with them?
- How will you engage and interact in an ethical manner?

LEVEL 1
STAGE 2

Curation tools (optional)

Meaningful tools to present the science story



The science story will be communicated and presented in a certain 'curation format'. The decision on 'which' format will depend upon the maker, the goal, the story, and the people we want to engage. A 'curation tool' can be an additional support for the presentation or curation of the science story. Such a supportive curation tool can take various forms such as a digital immersive app, but it might as well be an audioguide, for example.

Reflection:

- What type of curation tool would fit your science story? How would it support the story? How does it enhance the curation format?
- What is the function of the tool? How would it be used? By whom?
- What possibilities do you have? Do you have a budget? Is there technical support? Do you have support in the development of such a tool?

LEVEL 1
STAGE 3



Curation guidelines

The curation space

The physical curation space has an impact on the (design of the) science story as well. Make sure you bring the characteristics of the space into account when designing. The space should be as inclusive and accessible as possible to people with physical disabilities. Furthermore, the space should be effectively used. Perhaps there is an option for a virtual extension so that the curation can be still retrievable afterwards.

Reflection:

- Is the physical curation space accessible to people with disabilities?
Is it accessible to people who cannot physically visit / travel to it.
- Do you consider virtual spatiality? Is there a virtual extension of the physical curation space?
- Is the space effectively used?
- Will the science story be retrievable in some form after the physical closure? How?



Curation guidelines

Sensorial modes of meaning

Sensorial experiences introduce us to different ways of knowing and discovering new meanings. When designing the curation of the science story, it is good to reflect upon the role of visuals, but also about the potential role of sounds, embodied sensations and experiences, and how they are interconnected and -dependent. The senses will be affected and effected, therefore it is crucial to reflect upon their role in supporting and adding something new to the science story. By consciously reflecting upon the use of sensorial experiences, we can better guard the barrier between meaning making and manipulation.

Reflection:

- Are you using visuals such as photo's, drawings, images, animations? How will they impact the science story? What will they add?
- Have you thought about colour use and how specific colours have a certain (psychological) effect/affect and how they derive meaning(s)?
- Will you use sound within the curation? Will there be speech, a voice, a tone, music, or sound effects? What effect/affect can these sounds have?
- Will there be a gestural, kinetic, embodied or haptic component in the curation? Will body language or physicality play a role?
- How will the different sensorial components relate? How will they influence each other? Are the different components complementary, supplementary, or in competition? Are some redundant or distractive?



Tool guidelines

Technological translation and curation

Different standards and technical qualities should be taken into account when developing curation tools. Depending on the tool, the qualities might differ. There are, however, some general guidelines such as personalization and identification with the tool, story support, attractiveness, interactivity and playability, usability and user-friendliness.

Reflection:

- Have you inquired and explored the standards specific to your curation tool? What are specific characteristics?
- Can people identify with the tool? Is it appropriate and is it familiar? Is there an element of personalization? Does it connect to local knowledge, local identity, audience perspectives, or existing norms and values? Does the tool connect to everyday life? Does it elicit emotions? Is it adjusted to the preferences of the audience?
- Does the tool support the story? Does it make the narrative engaging? Does it support the information with visualization or other sensorial experiences?
- Is the tool attractive? Is it aesthetically appealing? Will it keep the attention of the audience? Will they be motivated to use it? Will they enjoy this tool experience?
- Will the tool involve the audience? Will it be able to engage them? Will the tool immerse the people in the science story?
- Is the tool fun, intuitive and easy to use? Is the design practical and efficient?
- Is the interface consistent? Is there a form of guidance or support when somebody uses the tool? Do people know how to start and exit the tool? Is the tool as minimalistic as possible/are unnecessary elements avoided? Is the physical setup comfortable? Are the instructions easy to understand?