



# Using Arts-based Methods in Science Communication



## Using Art-based Methods in Science Communication

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Communication of Science”

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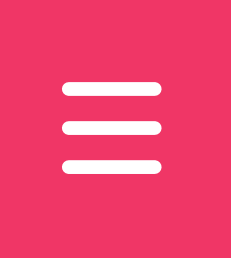
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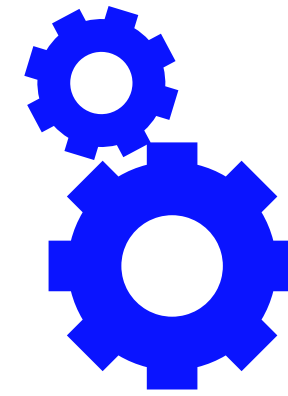
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# —Introduction—



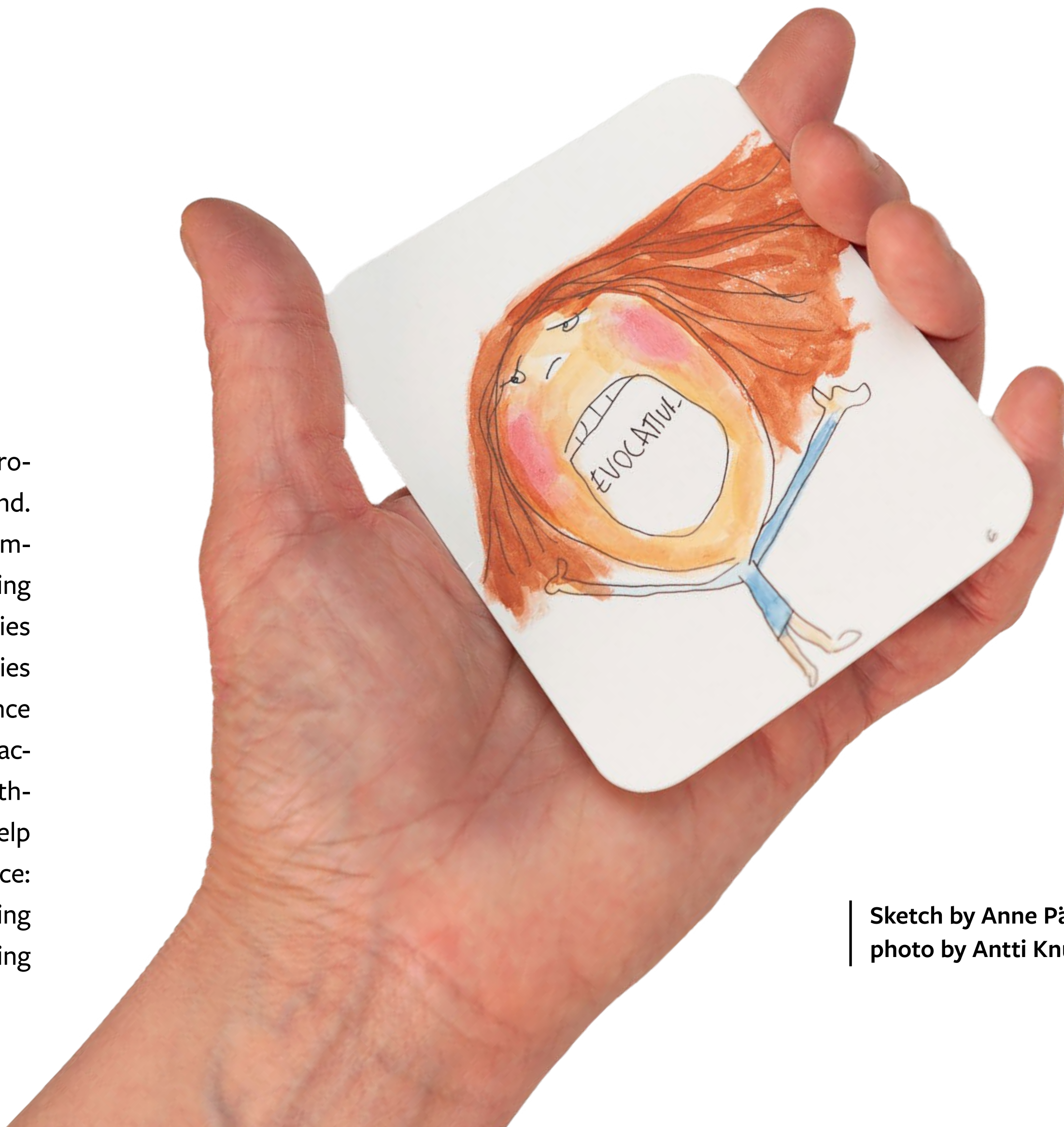
Anne Pässilä

# Preface

Welcome to Using Arts-Based Methods in Science Communication. This **pop-up guidebook** is carefully designed for you to test and taste. It is part of the European Union's Horizon 2020 SWAFS funded project called Participatory Communication of Science - ParCos (under grant agreement No. 872500).

This first version of guidebook has the nature of a pop-up guidebook; it is for testing ideas and getting feedback from you and other people applying arts-based methods in the context of science communication.

Specific case studies take place in three European countries, Belgium, the U.K. and Finland. Each case study progresses through a number of stages, from collecting or identifying scientific data, to finding and telling stories from the data, to communicating the stories through selected media for a chosen audience with the intent to prompt further science activities from the outputs. Arts-based methods in each case study are identified to help with the following activities of citizen science: identification of problems, ideation, framing of solutions, design or deployment. By doing



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this we are carefully identifying why, when and how we use specific arts-based method.

After testing, getting feedback and deepening our understanding of arts-based methods in this specific context, the book will be updated and the final version will be written for you.

The pop-up guidebook opens a door to use arts-based methods in various stages of participatory processes of making sense of data. This is based on an ideology of making science participation a mainstream activity; one that is a part of popular and cultural activities, one that people want to – and more critically are able – to participate in. It is an iterative co-creation process.

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The communication and propagation of scientific information is easier than ever. It is no longer the case that science is conveyed through a single authoritative voice to a passive public. Tools that allow the public to collect data and offer their interpretations are being seen through large-scale and mainstream initiatives, often framed as citizen science or participatory sensing initiatives, or open knowledge sharing activities.

The Participatory Communication of Science-project aims to explore the common practices of both generating science and

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communicating about it in a) citizen science activities b) science in schools and c) research activities of universities.

We are interested in how public engagement with science practice and data interpretation can be supported through popular cultural forms, such as video broadcast, VR and AR technologies. We also want to research how such experiences can be augmented with data, making the evidence more salient through these media and prompting and supporting the public's interpretation of it.

ParCos works from a perspective of diversity, inclusion and empowerment. Effective engagement is to create an environment where technology, knowledge, expertise and

collaboration can be combined to co-create solutions and opportunities that generate value and legacy for all.

In this view, citizens and young people should be empowered in undertaking science activities, interpreting outputs and communicating science amongst their communities. By tailoring the content, scope and focus to the interests and priorities of the people and partners working with it, projects are thus defined through co-design and co-production and have an inclusive approach.

**Arts-based methods in Participatory Communication of Science -project are to support participatory sense-making of science outputs.**





The focus of using arts-based methods is to allow individual perspectives to emerge and these are then critically thought through. Reflection is a skill that can be learned, and especially critical reflection is fundamental as we often seek evidence that supports our own ideas and assumptions, ignoring evidence to the contrary. It is easy to find evidence to support any point of view, even if the evidence is flawed. With the help of arts-based methods basic assumptions (which are often normalized to be the right perspective) can be explored and made visible as well as made accessible and engaging to the public. In this guidebook we introduce the use of arts-based methods and share our experiences applying them into participatory meaning making.

- ▶ The ParCos arts-based methods are designed to help people to share information in constructive ways, that support good scientific practice and the use of scientific data and other forms of information to answer questions and support hypotheses.
- ▶ ParCos proposes that the solution lies in making science participation a mainstream activity, one that is a part of popular and cultural activities, one that people want to - and more critically are able - to participate in.
- ▶ ParCos will explore solutions that bring the supporting data and evidence to the forefront of science communication, whilst encouraging alternative interpretations of evidence to be explored and discussed,

thus adopting a truly participatory approach to understanding and interpreting scientific outputs.

The participatory approach applied in the ParCos is called the **Bristol Approach** which is a framework to ensure a people and issue-led process for citizen science and engagement. Rather than pushing pre-determined ‘tech solutions’ onto people, The Bristol Approach provides a set of tools and a way of working that supports different groups – from councils and businesses, to schools and community organisations and individuals – to tackle the pressing issues in their community and create a greater understanding of the topic.

The Bristol Approach is focused on working with a diverse and inclusive community to identify issues, co-create the tools to measure, change or represent them, and then share

these tools and findings openly in accessible, understandable, and contextual ways.

This is done through creative workshops which provides consistent and open collaboration with a wide-ranging group ensuring it includes often underrepresented skills and perspectives to help shape an ideas and action towards meaningful solutions. At the heart of this framework is the development of a ‘**city commons**’, where resources, tools, expertise and technologies are shared and used for the common good.

**Arts-based methods in this framework focuses on supporting participants to collect and make sense of their own data: the process demystifies often inaccessible information.** Here you may find more about [Bristol Approach](#).



**Core concepts:** data, co-design, co-creation, participatory approach, why include the other concepts? as aesthetic distancing and polyphony? It was not used earlier in the text while the other concepts were already used.

**Data** is a single piece of information for example facts, statistics, symbols which gathered together form information.

**Co-design** is a design process in which citizens have a major or minor role in different or every stage of design activities. Process is often lead by professional facilitator whom have a range of participatory activities in use.

**Co-creation** is a multi-perspective way to organize co-design process where citizens, designers, artists, art educators, researchers and stakeholders creatively work together to idea generate, improve, test an evaluate for

example new solutions, products, practices, services and concepts

**Participatory approach** is a practical and ethical methodology which is often used in co-design where citizens are actors in one or every stage of process; planning, acting, observing, reflecting

**Aesthetic distancing** A concept based on Bertolt Brecht's idea of the alienation effect, which breaks down the illusion of cathartic theatre. The idea of aesthetic distancing puts familiar, taken-for-granted issues in a new light, making the unfamiliar familiar and vice versa; everyday affairs and relationships are explored through metaphors or roles. This allows for reflection and reflexive thinking; participants sensuously explore different type of distance related to the issues at hand.

**Aesthetic participation** Embodied and cognitive engagement in a process wherein participants use their senses, bodies, and experiences to reflect on their experiences and those of others. A distinct aspect of aesthetic participation is the notion that participants are simultaneously engaged in and distanced from whatever they are exploring.

**Polyphony** A descriptive concept that illustrates the nature of aesthetic distancing and of the dialogue created through aesthetic participation. Polyphony means that various perspectives, voices, and points of view can exist simultaneously.





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Anne Pässilä

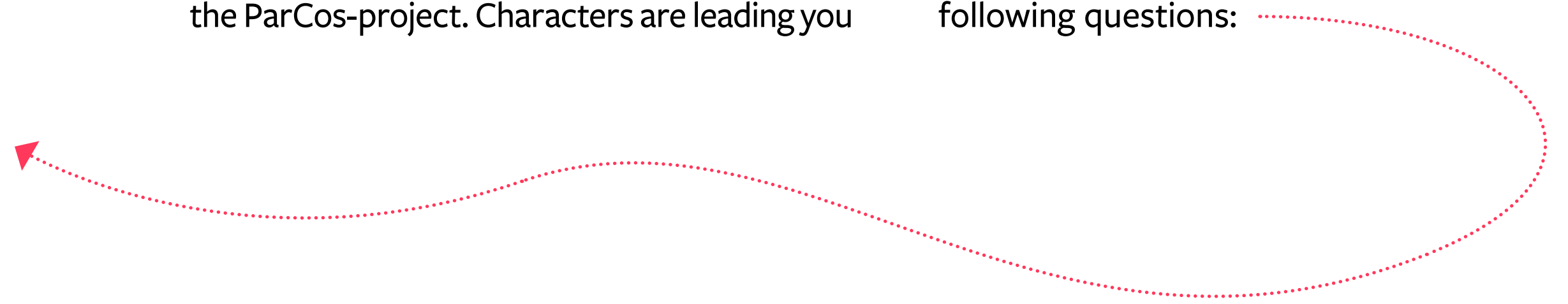
# How to read this guidebook

This guidebook is designed so that you can pick out individual pieces at a time, and each of them works independently, but also as part of the whole. You can use the table of contents as your trigger to find out more about arts-based methods in the context of ParCos. Hopefully you find what you need and will make your own connection.

You will get familiar with some fictional characters venturing in this Guidebook, they are based on experiences of several facilitators in the ParCos-project. Characters are leading you

towards practical context and interaction. **Ava** is a facilitator who is working with various communities applying arts-based methods to participatory design. **Milo** is an artist who works within communities and organisations applying his artistic skills and competences - his special interest is in social justice and collective voicing. **Sophia** is a voluntary member of a community center and is interested in democratizing the ownership of data to citizens.

We hope you will be inspired thinking through following questions:







# —Context—





Anne Pässilä

# Theoretical roots



## *Theoretical roots of arts-based methods*

From the very beginning humans have been drawn to expression, pleasure, belonging and spiritual being. We can only imagine the reason for humans leaving their own hand prints and drawings 15 000 or even 25 000 years ago in the Lascaux cave's nearly 6,000 figures. Anthropologists and art historians have been theorizing they were made as a symbolic and ritualistic act to guarantee luck in hunting or as an accounting system of past hunting or maybe something else. (Fleming and Honour, 2009)

At that time, man did not perceive an animal figure drawn on a rock as a form of art. In the past, artisans have been responsible for producing art and their work has been valued for their skill and identified as a craft and part of culture.

Art as the current perception of the creative act of professional artist has only begun to take shape from the beginning of a new era. Since that art has been provocative concept and some of us emphasize that it is related to imitation, imagination, evoking emotion and senses. Art can be broadly defined as a human action, creation and ways of expression, including for example dance, music, literature, theater, film, sculpture and paintings manifesting various way in different cultures and times (Fleming, and Honour, 2009).

Interest in arts-based approaches and various forms of arts-based methods in business and management education (Taylor and Ladkin, 2009) as well as “education in, through and for communities” (Coemans & Hannes, 2017)

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has continued to grow in the 25 years since Eisner published his seminal work (1993) exploring the possibilities of bridging research in arts and science. Arts-based approach can be seen “as a wide spectrum of practice” (Owens, 2019, p.8) *where on the one point of spectrum there is an instrumental use of art and on the other point of spectrum art is having absolute value without any need to serve or benefit anything else than itself.*

Arts-based methods are as a concept itself methods that are based on a specific form of art. For example methods based on theater and drama are often designed with the help of basic elements of dramaturgical framing (role, situation, focus/perspective and tension) and are used in one or all stages of research.

Owens (2019) definition of arts-based methods in education research is: “A *process of investigation leading to new knowledge effectively shared in which the arts play a primary role in any or all steps of the process*”. Coemans & Hannes (2017) define arts-based methods in community-based inquiry as: “*The use of artistically inspired methods by researchers and participants in a collaborative research environment where members of the community are actively involved either in creating art in the search for meaning or in providing a critical, situated response to artistically inspired formats of research dissemination from others.*”

Arts-based methods are classified as such:

▷ **Visual art:**

- Still images
- Photography
- Drawing
- Collage
- Painting
- Graffiti Moving images
- Video
- Digital animation 3D artefacts
- E.g. quilts, mosaics, masks, life-size marionettes.

▷ **Performing art:**

- Theatre/drama Dance Music Puppetry.

▷ **Live art:**

- Writing on the body.

▷ **Literary art:**

- Poetry Creative writing Reader’s theatre Multiple methods approach (i.e. combining different art genres) (Coemans & Hannes, 2017).





Identification can also be done **through a context** in which they are used and **through a purpose** they are serving. For example arts-based methods in organizational development, learning and change purpose can be: to increase empathy and awareness of emotions, to increase skills on reflection and reflexive practices, to elaborate individual and collective creativity (Taylor & Ladkin, 2009).

Identification from **community-based research context** with vulnerable community purpose can be:

- ▶ to overcome power imbalances between researcher(s) and the subject being researched, to give a voice,
- ▶ to better articulate experiences,
- ▶ to facilitate reflection and dialogue,
- ▶ to work with more vulnerable groups,
- ▶ to be able to explore more complex or sensitive issues that are difficult to verbalize,
- ▶ to motivate individuals,
- ▶ to develop specific skill,
- ▶ to influence social policy,
- ▶ to facilitate change
- ▶ to communicate research findings (Coemans & Hannes, 2017).

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In a field of **organization, innovation and management studies** arts-based methods have several purpose and context:

- ▶ for gaining competences for creative problem solving and ideation in a studio-based learning and participatory design context, for example work of Meisiek (2016), Barry and Meisiek (2015) and Larsen and Friis (2018) .
- ▶ for increasing skills on reflection and reflexive practices, for example the focus of the work of Pässilä (2012) and Pässilä, Oikarinen and Harmaakorpi (2015) was in making sense of multiple needs, interest and tensions in innovation, and, in investigating how professionals gain collective understanding through their customer's as well as each other's experiences in perplexed situations with the help of research-based theatre, work done in a field of arts-based health research by Hodgins and Boydell (2014); Fraser and Sayah (2011); Nisker, Martin, Bluhm and Daar (2006); White and Belliveau (2011).
- ▶ for creating and strengthening emotional link to knowledge creation; to 'emotive knowledge' with the help of arts-based initiatives (Schiuma 2011, p. 3.) both on people – on their energetic and emotional states as well as on their attitudes and self-reflection – and on organizational infrastructure in in a knowledge management context, for example the work of Schiuma (2011) and with a focus on artful inquiry in management education, especially when on developing innovation competency for example the work of Darsø, (2008; 2017) and in a context artful inquiry (Barry, 1996)



for emphasise on how the arts and artistic action allow organisational and societal impact, for example the work of Adler (2015)

In all cases it is relevant to identify which stage of research design arts-based methods can be used in: “...*generating or framing or finding the research questions, in generating or capturing data, in analysing data, in disseminating, sharing, keeping warm the results for further interaction and re-framing of questions...*” it is also relevant to think through research position “*doing research ‘with’ rather than ‘on’ participants, enlarging understanding rather than explaining meaning; making complex*

*interactions visible; credibility and relatability; multiple ways of seeing the world; finding the most useful questions; making research accessible to all citizens*” (Owens, 2018 p. 10; Leavy, 2015; Bobadilla, Lefebvre and Mairisse, 2017).

One of the core focus in applying arts to participatory communication of science is based on storytelling and emerging narratives that are unlocking us.

Please think a spectrum of arts-based methods and make a drawing of it. Please place your own practice in it.

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Anne Pässilä

# Contract in participatory process

## *How and why to make commitment to work together*

Imagine that you are working in a community for example in a school class where you will step into a world of educational organization with young students and teachers and in some cases also their parents or carer. Before opening a class room door you have already negotiated with stakeholders at school, had a several e-mails, on-line meetings and face-to-face meetings with vice-chancellor and teachers. With them you have gone through an ethical process at school and at your own organisations. During that process you have explained the goals of the project you are planning to collaborate on with them, explaining about each having voluntary participation and

asking their consent to be part of a project you are leading.

May I introduce you to **Ava**, she is a facilitator who is working with various communities applying arts-based methods to participatory design. When opening the class room Ava is often enthusiastic; simultaneously excited and nervous. She has lot of thoughts and feelings. Her hidden thought might be: How would student find this workshop? How should I include them in to a workshop? How to frame what we are doing together and why? What about teacher would they stay in workshop? How to hold leadership in participatory process?

How to take care of socio-dynamics in playful way? How to appreciate each student's point of views and ways of being?

Next you may get familiar with how Ava builds up working commitment with student.

Facilitator Ava: First of all I am inviting you to make an agreement to do something on mutual agreement, we could call this agreement a contract of our collaboration.

Ava is organizing a space for conversation and inviting students to form a small groups. Some



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times Ava will facilitate conversation about agreement with all of the participants. This time she chooses to have a start within small groups so that she could immediately sense the sociodynamics of this group of students.

Ava continues: Please have a short open conversation about how you can take care of yourself and your classmates in an appreciative manner when working together.

Ava's background is in arts education specialism in applied drama and theater where she has learnt that a contract 'is impersonal and negotiated before conflicts starts, so if conflict occurs you are not locked in to a personal 'I told you to do... and you refused' head to head argument. It is a breach of contract – no argument, no personal recrimination. With a

contract you have a strategy to move forward when the process is not working." (Owens and Barber, 2001, p. 5)

Ava is smiling and looking at each of participants while saying: This contract is very relevant because the logic of our collaboration is to create ideas and make sense together, therefore we need to cherish multi-voiced interaction that assists innovation; to share ideas, visions, hopes and fears that blocks us. This type of interaction is based on trust and a feeling of being safe when idea generating. The overall context of this workshop is a global complex problem where there is no one right solution but several optional guideposts. Therefore the duty and joy of all of us will be to hold together hopeful spaces that invite curiosity and appreci-



ation. I hope you will enjoy this interaction, collective interpretation, reflection, envisioning and making sense together.”

Students start to talk in small groups for few minutes. After that Ava inquires what are the key points of working together in an appreciative way and then they all together talk through and list things they will collectively hold during collaboration.

Ava underlines summaries of core elements of the contract: We all will take care of ourselves and each other, not hurting ourselves, others or this room we are working in together, you are allowed to step out of arts-based activity at any time you feel like and keep on

following what others are doing and letting them to continue, we are all trying to keep open curious mind and not blocking own or others ideas.

There are short term contracts for one or two sessions and long-term contracts for a participatory process that can last weeks or months, and there you could more precisely set achievable goals together. The main role of creating shared contract is to create space for participants ownership of their own arts-based action and expression. It is relevant for all actors to believe that arts-based action belongs to them. Ownership is created when participants believe that their ideas and decision making is directly affecting the direction of co-creation. (Owens and Barber, 2001 p. 7)

It is fundamentally important for participatory approach that participants views are appreciated and they actually are part of co-design. (Balestrini et al., 2017; Britton, 2017).

Ava is aware that the contract is an important step towards active agency in participatory process, she has responsibility as a facilitator to enable participants and create space for ownership but she also knows she can not act on behalf of other people. Ultimately the goal is to create a space for polyphony in a spirit of mutual appreciation and respect.

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Anne Pässilä

# Ethos of participatory arts-based and action research

We will meet fictional characters venturing through this Guidebook, they are based on the experiences of researchers, artist and arts-based and community-based facilitators in ParCos project. Characters are leading you towards a practical context and interaction and helping you to find a way how to use arts-based methods.

Here again our fictional characters are saying hello to you. **Ava** is a facilitator working with various communities applying arts-based methods to participatory design. **Milo** is an artist working within communities and organisations applying his artistic skills and competencies especially in a context of social justice,

collective voicing and ICT. **Sophia** is a voluntary member of a community center and interested in democratizing the ownership of data to citizens. **Iloona** is a six year old girl who is taking part in a participatory process.

The use of and creation of these fictional characters are based on dramaturgical thinking and inspired by Lawrence & Patricia (2015) and Pässilä & Owens (2016).

Ava, Milo and Sophia are using arts-based methods on the participatory Action Research phases: plan, act, observe, reflect and we will also integrate principals of participatory design and user centred design. (Balestrini, et

al, 2017 ). Ava appreciates Milo's emphasis of organizing reflection and questioning taken-for-granted - power position by asking: "Who is arts-based methods in this research for? Who will benefit from participatory action research and participatory design? What are we doing for the greater good?" (Coghlan and Brydon-Miller, 2014; Leavy, 2015; Cotter, Pässilä and Vince, 2015)

Sophia is actively involving different citizen groups in a reflective research and design processes. She is also inspired in collaborating with Ava and Milo and saying to them: "My vision is that we together create valuable interaction designs that make a difference in

people's future lives. This is a focal point when building a dialogue within and across inter- and multi-disciplinary work on children, youth and media research, and addressing the demands from policy makers."

Ava responding to her: "Yes, it is important in the development and testing of innovative qualitative research methods, both on a primary and meta-level. Focusing on the development of tools, worked examples and guidelines for conducting primary qualitative research with a special focus on arts-based methods and science communication with children."





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photos by Antti Knutas

Milo echoing both of them saying: *“It is relevant more than ever before to focus on the overlap between media, technology, public space and critical thinking. Our work at the grass roots level to empower children and their families to take action about their home, street or neighborhood could be seen as new form of beautiful solidarity and appreciative activism.”*

Ava continues: *“Narratives and storytelling (Boje, 2008) can be a path to open and learn about benefits of ‘polyphony’ and ‘Heteroglossia’ articulated in an arts-based object or process based on own experiences and interpretation (Bakhtin, 1981). And not to underestimate the power of imagination and imaginative thinking.”*

They start together to recall a workshop which was orchestrated with young people and they all agreed that the concept of innovation then needs to be rethought.

Sophia: *\*...it becomes a question of social and interpretative dimension of innovation where children and young people are part of the knowledge production related to process renewal as well as their interpretations of existing situations and assumptions.*

Milo: *The logic is to develop innovation awareness for breaking “silos of us and them”, facilitating participation, encountering each other and becoming aware of bottlenecks between various actors; citizen groups, civic officers, local business people and artists.*

Ava: *When creating innovations, citizens together explore and interpret their own experiences, assumptions and data; they make as well as break the sense of their actions, social processes and relations in them. (Pässilä et al., 2013)*



Sketches by Anne Pässilä,  
photos by Antti Knutas



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Balestrini, M., Rogers, Y., Carolyn Hassan, C. and Creus, J. (2017) *A City in Common: A Framework to Orchestrate Large-scale Citizen Engagement around Urban Issues*. CHI 2017, May 6–11, 2017, Denver, CO, USA.

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Pässilä, A. and Owens, A. (2016) *Sensible Sensitivity: Arts Pedagogy in Management Development*. Peter Stokes, Neil Moore, Simon M. Smith, Caroline Rowland, Peter Scott (eds.) *Organizational Management: Approaches and Solutions*. Kogan Page, pp. 191–218.

## Video reference:

Evocative report by artist Laura Mellanen & researcher Anne Pässilä 2013 <https://www.youtube.com/watch?v=LQasQFNYW5I>



Anne Pässilä

# Arts-based methods supporting participatory sense-making, agency and dialogue

Arts-based methods can be understood as a source of participatory process in a context of co-design and co-creation, the purpose of this is to build sustainable societies. In this context all involved are active citizens and have an agency in their community whether they are conscious or not about it. Part of the reason to use arts-based approach in ParCos context is that people who take part in co-creation processes become more conscious about the nature of their agency; how empowered or powerless they find themselves. In this sense this type of an approach

invites you to critically think about social, cultural, environmental, emotional and political interests related to data.

Arts-based methods in ParCos are designed **to help to build up dialogue and lower barriers to make-sense, articulate and share experiences as well as imagine possibilities and future scenarios**. It is a knowledge source to find out local knowledge to citizens themselves as well as local civic organisations. (Coemans et al., 2018)

Ava, Milo and Sophia have been inspired by radical pedagogies when working in communities, especially they are inspired in combination where educator and philosopher Paulo Freire's ideas of critical pedagogy are vowed into a theatre director Augusto Boal's art philosophy and theatre practices. As an applied drama practitioner Ava sees their pedagogy and arts *"as an epistemology for creating a space for people to make sense of complex micro- and macro-level processes related to their lives, communities, and society."* (Pässilä, 2012 )

Sophia underlines that arts-based activities are serving several purposes; research, education.

Milo nodding and asking you: "I have always had a need of becoming more and more aware of my pedagogical roots. I assume each of us have our own theoretical inspirators in our practice. I was wondering what is yours?"

At the moment Sophia is in the midst of making sense of data and is inspired by collaboration with Ava and Milo. Milo's vision is that





to prompt participants, citizens, towards experiential, richer, engagement with the data, that prompts deeper thinking about the circumstances where the data was collected, how it felt, how it smelled, what the people who were nearby (if any) may have been having as well as having a similar deeper engagement with narratives created based on available evidence.

| Milo asking you: “What is your vision?”

On a very practical level Ava has used arts-based methods to support participatory sense-making, agency and dialogue. She has been using one particular arts-based technique based on theatre, Forum Theatre as well as theater games, she has applied it for the purpose on sense-breaking and sensemaking within the innovating citizens-groups in social service innovation context. The aim of the technique is

to make visible and break the prevailing ways of acting among citizens.

Ava underlines: “The novel insights are created through social interaction, capability building and actual implementation; it can be minor change which can be implemented immediately or more complexed or system-based change which needs more time and effort. It means changes also at the socio-cultural level of the process; together deepening understanding of real-world patterns and interactions during service processes. Kind of creating a polyphonic understanding of what actually is happening and could happen.” (Nobles, at al., 2020; Pässilä et al., 2015 )

Sketches by Anne Pässilä,  
photos by Antti Knutas

arts-based methods are used in conjunction with new civic interfaces to data, which extends the previous work on civic data interfaces, combining existing principles for creating data dashboards for scaffolded interactions with data (Wolff et al., 2019; Wolff et al., 2017) with new tools for finding stories in data.

Ava’s vision is that taking into consideration how to scale some of these arts-based methods to support the audience who participate with those stories in the future to find their own narratives in the data and other scientific content made available for interpretation. Sophia’s vision is that arts-based methods are designed



Sketches by Anne Pässilä,  
photos by Antti Knutas



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Nobles, J., Thomas, C., Banks Gross, Z., Hamilton, M., Trinder-Widdess, Z., Speed, C., Gibson, A., Davies, R., Farr, M., Jago, R., Foster, C. and Redwood, S. (2020) Let's Talk about Physical Activity": Understanding the Preferences of Under-Served Communities when Messaging Physical Activity Guidelines to the Public. *International Journal of Environmental Research and Public Health*. 17(8) Epub 2020 Apr 17.

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Anne Pässilä

# ParCos approach

In this guide book our focus is in arts-based methods in participatory science education. Next we are shortly introducing the ParCos approach to you.

The ParCos approach is based on the premise that it is important to retain links to source evidence when communicating science.

When science is presented to the public through science stories – such as news articles, blogs or science programmes – the link to the original scientific outputs and data is often lost (following figure).

Note there is no interaction between the secondary science story and the experimental data. This means that the public are not able to validate claims made for themselves and must use their own judgement to decide whether to trust the interpretation made by the author, or not. In the ParCos approach we propose to reinstate this link and to make secondary science stories more participatory, allowing for multiple viewpoints to be heard and discussed.

We will do this by embedding data to augment secondary science stories and extending existing models of science inquiry to take into account the re-use of existing data and

consideration of multiple perspectives as part of a normal science process, such as it might be taught in schools or supported through a citizen science activity. We will consider how the generation of primary science stories and opening of science data does or does not support this currently and how this could be improved (following figure).

The ParCos project will focus on three specific aspects of this process. Firstly, how data can be curated and made available in a way that makes it accessible for everyone to use and minimises barriers, for example due to problems with access, lack of context, or requirement of high level data literacy skills to

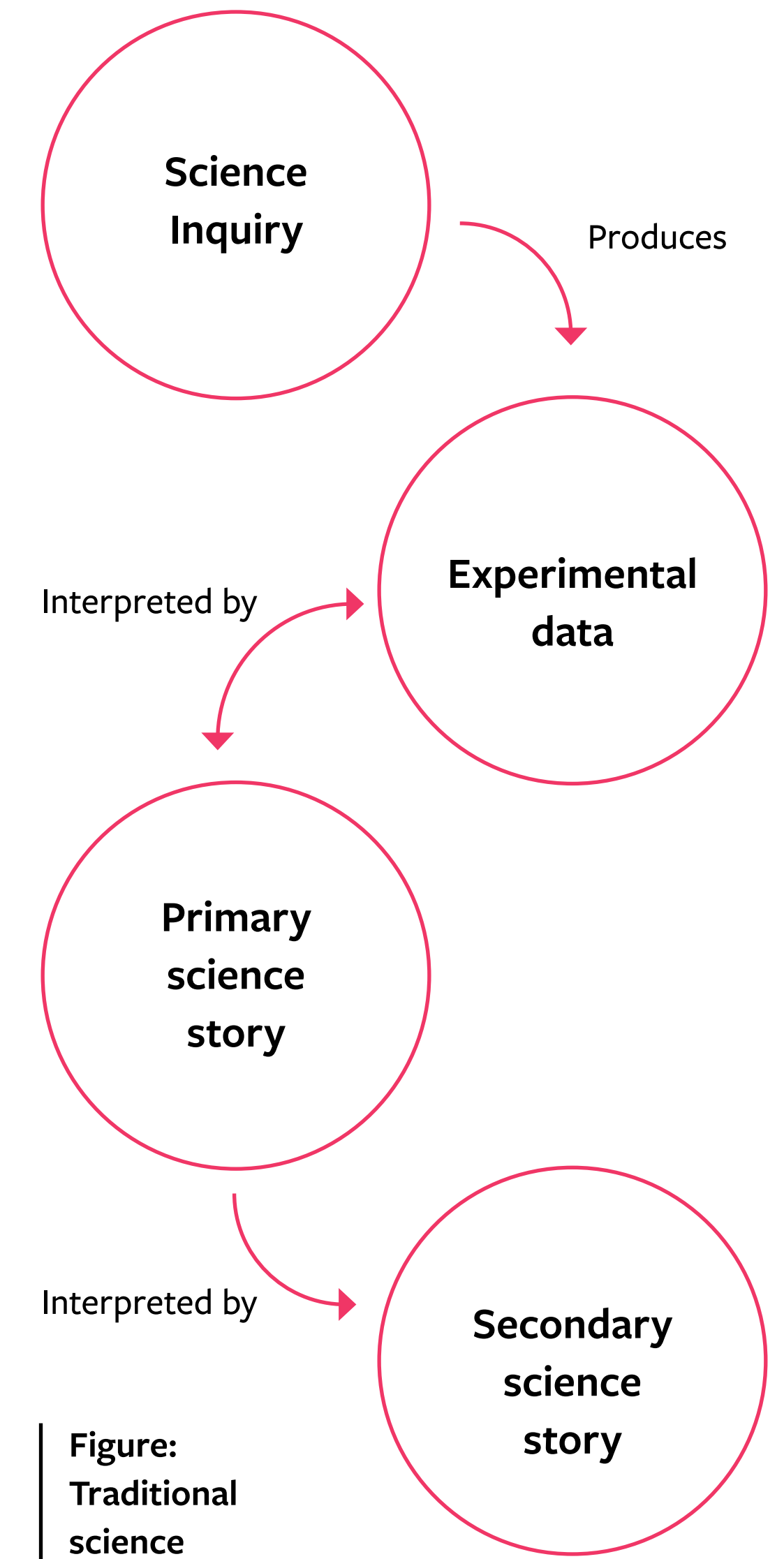


Figure: Traditional science communication.



Sketches by Anne Pässilä,  
photos by Antti Knutas

work with it. Secondly, how arts-based methods can be used to support participatory sensemaking of the data within the communities who collect it and (if different) those who are telling the story from it.

This will include how to understand the emotional, relational and dramatical aspects of the data, to support in both interpreting and making editorial choices about the data and how it can be used to augment a story. Third, how the data can then be embedded into popular cultural forms such as broadcast media, VR and AR experiences to reach a wider audience and in a way that this new audience can engage with.

ParCos will then consider through what pedagogical approaches might different actors

– including school children, the public and also professionals – be supported in learning and engaging with the methods in the creation of participatory science stories.

Case studies will take place in three European countries, Belgium, the U.K. and Finland. Each case study progresses through a number of stages, from collecting or identifying scientific data, to finding and telling stories from the data, to communicating the stories through selected media for a chosen audience with the intent to prompt further science activities from the outputs.

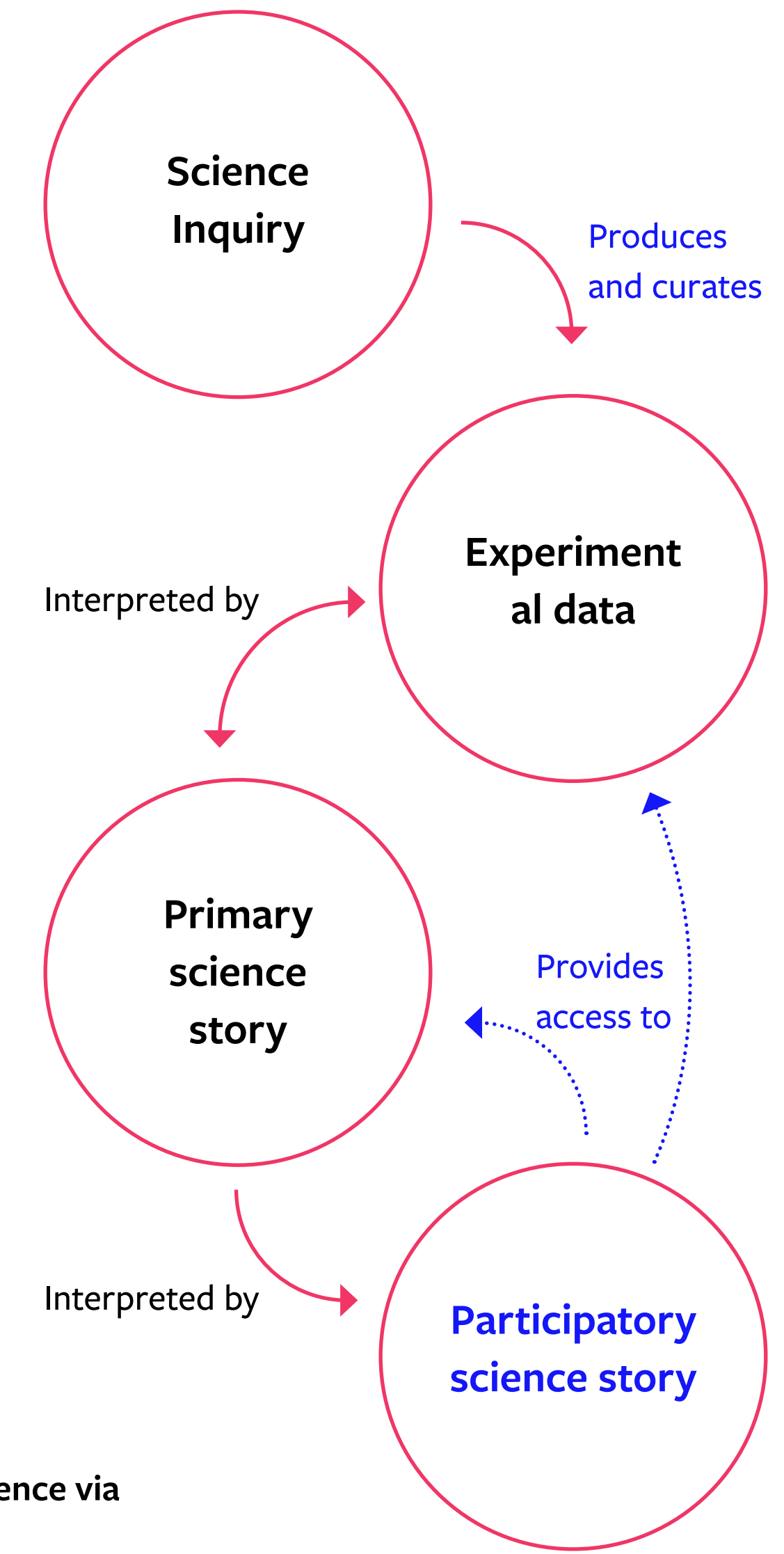
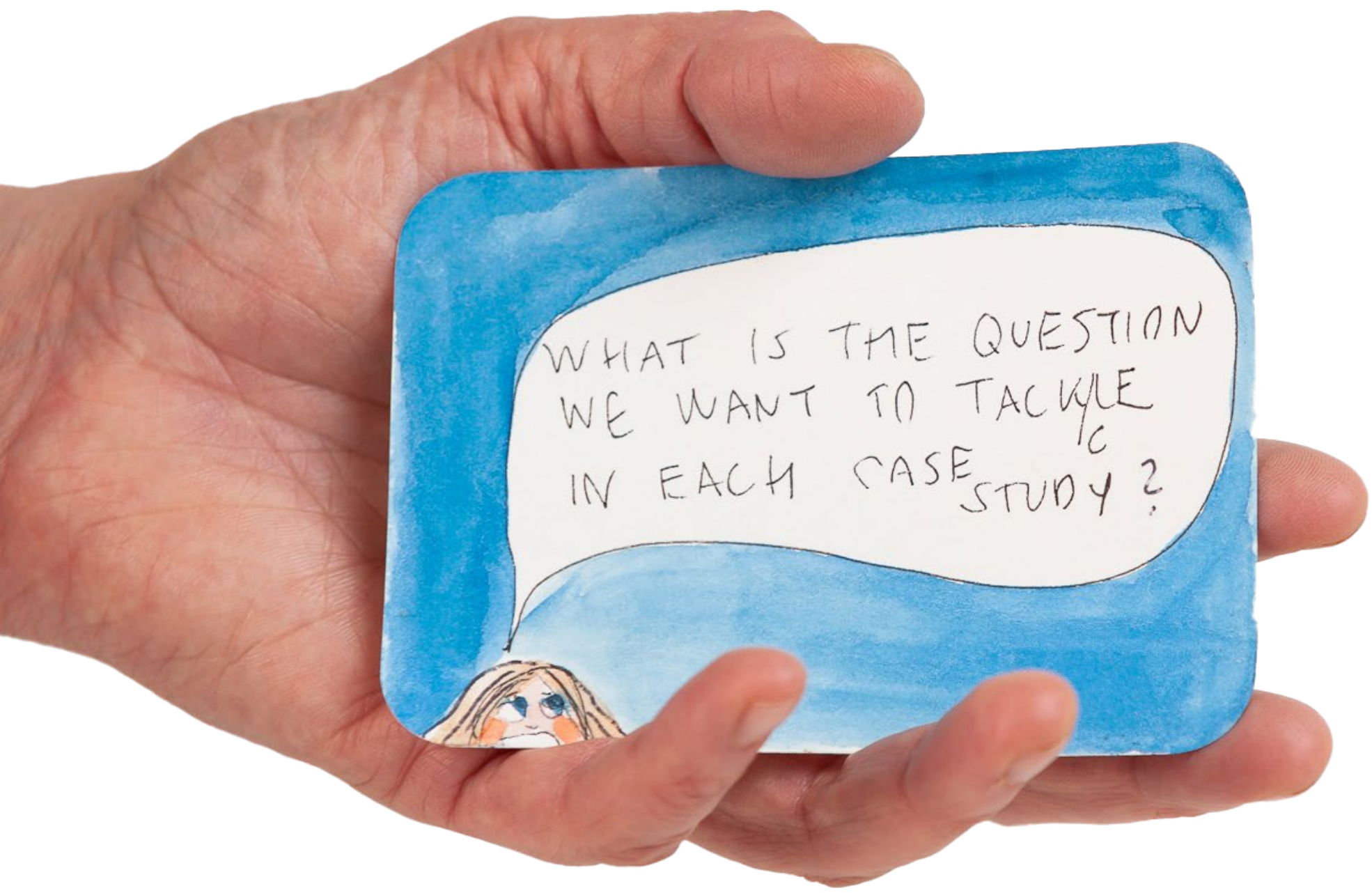


Figure: Facilitating participation in science via evidence linking



Anne Pässilä

# Case studies



Sketches by Anne Pässilä,  
photos by Antti Knutas

Next we are shortly introducing case study context and purpose of them.

## Case study descriptions

You will find up to date case study descriptions in the links below. The headers below contain plans and are slightly outdated.

- ▶ Case study LUT
- ▶ Case study VRT
- ▶ Case study KWMC





## Case study plans and original illustrations

Sketches by Anne Pässilä,  
photos by Antti Knutas

### Case study 1 (VRT)

In this case study, we will combine citizen science on the topic of climate in a show on VRT's TV channel oriented at children, i.e. Ketnet.

VRT is already exploring how three schools use data that is captured via air quality sensors as

a conversation and/or story generator. Here, teachers and school children film their discussions on how to interpret the data, and how they can act upon.

We are developing a tool in which (sensor) data and expert knowledge to denounce that

data, and professional and user generated content come together and can be combined, edited and distributed in a television format.

We are finding solutions to following question

- ▶ how can data be visualized in a TV show and online applications (oriented at children) to engage the viewers with this data? Furthermore, upcoming immersive storytelling technologies as augmented and virtual reality offer new data visualization opportunities that are engaging for a young audience. To tackle this question, we will set

up a participatory design approach to design data visualizations for television with children. Through this approach, we will learn about their understanding of visualization and how we can translate this to storytelling.

- ▶ how can this tool present data to television producers? Here, we draw upon existing work on narrative visualization, e.g. by deploying a line graph and annotating it with expert knowledge to highlight insights, and map this line graph on a storyline.





Sketches by Anne Pässilä,  
photos by Antti Knutas

### Case study 2 (KWMC)

We expand upon our work with the Bristol Approach, a framework we developed to ensure a people and issue-led process for citizen science and engagement. Rather than pushing pre-determined ‘tech solutions’ onto people,

The Bristol Approach provides a set of tools and a way of working that supports different groups to tackle the pressing issues in their community and create a greater understanding of the topic.

We work with a diverse and inclusive community to identify issues, co-create the tools to measure, change or represent them, and then share these tools and findings openly in accessible, understandable, and contextual ways.

At the heart of this framework is the development of a ‘city commons’, where resources, tools, expertise and technologies are shared and used for the common good. These methods are key component; by supporting participants to collect their own data the process demystifies often inaccessible information.

We are intensely interested in following issues:

- ▶ how information is communicated, with a broad background in

traditional media and a history of innovation in emergent media,

- ▶ how immersive (e.g. VR, AR) and contextual (e.g. notifications, chatbots) mediums can better communicate data and science in more personalised, accessible and intelligible ways.
- ▶ to utilise maker space The Factory to imaginatively prototype and manufacture physical items, whether through creating eco-friendly enclosures for sensors or manufacturing objects to represent scientific data, highlight a specific challenge or opportunity relating to the data.





Sketches by Anne Pässilä,  
photos by Antti Knutas

### Case study 3 (LUT)

We focus on science in schools and how scientific data may be interpreted at both a local and national level and understanding what are the differences of these two contexts. In this case study, students (aged 12-14) from between 3-5 schools in Finland would be invited to collaborate on research being conducted on research projects within Finnish universities, including being given access to datasets, curated according to the ParCos project methodologies and using ParCos tools

and methods to support data interpretation created as part of the project.

In this case study, the science activities that generate data that is used to create participatory science will be undertaken by research institutes and the second stage, of interpreting data and creating the stories, will be continued by school children. In this way, communications are improved between universities and schools in a local area. Students would within their own schools and local context interpret and communicate the findings, using

either documentaries or VR/AR technologies as participatory science stories. Students would then engage with each others stories and try to see if a common narrative can be found, or if the local differences in context are important.

Through this, students will learn a number of skills including

- ▶ how to conduct science inquiry
- ▶ to gain literacy skills for asking and answering questions from large data sets, either that they or others have collected

- ▶ how to communicate science through participatory techniques
- ▶ how to collaborate in interpretation of science
- ▶ to apply new technologies and techniques, such as documentary making and VR/AR.

This case study explores the importance of outreach and linking schools and research institutes as part of conducting science and the extent to which the research institutes themselves will benefit from the insights provided by the students.



# Inspiring reading list

Inspiring reading list for you, here you are :)

## **We use arts-based methods in research:**

Wang, Q., Coemans, S., Siegesmund, R., & Hannes, K. (2017). Arts-based methods in socially engaged research practice: A classification framework. *Art/Research International*, 2(2), 5–39.

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Neighborhood: Art Students' Experiences of Place Explored Through a Material-Discursive Analytical Lens. *Art/Research International: A Transdisciplinary Journal*, 4(2), 505–534.

Coemans, S., Vandenabeele, J., & Hannes, K. (2018). Compositional ethnography: Enriching our understanding of a changing neighborhood through an aesthetically inspired approach. *ECQI 2018 PROCEEDINGS*, 41.

Leavy, P. (2009) *Method Meets art Art-based Research Practice*. New York: Guilford Press.

Benmerqui, R., Owens, A., and Pässilä, A. (eds.) *Beyond Text – Art-based methods for research, assessment and evaluation*. <https://beyondtext.weebly.com/>

Pässilä, A., Oikarinen, T. and Harmaakorpi, V. (2015). Collective voicing as a reflexive practice, *Management Learning*, February 2015, vol. 46 no. 1: 67–86.

## **When we combine arts-based methods to participatory approach we often find interesting studies and practices in an applied drama and theatre:**

Beck J. L., Belliveau G., Lea G. W. and Wager A. (2011) 'Delineating a Spectrum of Research-Based Theatre', *Qualitative Inquiry* 17(8): 687–700.

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Nisker, J., Martin, D., Bluhm, R., and Daar, A. (2006) 'Theatre as a Public Engagement Tool for Health-Policy Research', *Health Policy* 78 (2–3): 258–271.

Saldaña, J. (2008) 'Ethnodrama and Ethnotheatre', in N. K. Denzin and Y. S. Lincoln (eds.) *The SAGE Handbook of Qualitative Research*, pp. 195–208. Thousand Oaks, CA: Sage.

Hahlo, R. & Peter R. (2000) *Dramatic Events: How to Run a Successful Workshop*. London: Faber.

## **We are learning about Bristol Approach City in Common (BACC):**

Balestrini, Mara & Rogers, Yvonne & Hassan, Carolyn & Creus, Javi & King, Martha & Marshall, Paul. (2017). *A City in Common: A Framework to Orchestrate Large-scale Citizen Engagement around Urban Issues*. 2282–2294. 10.1145/3025453.3025915.





**We use a research-through-design driven approach:**

Zimmerman, J., Forlizzi, J., & Evenson, S. (2007, April). Research through design as a method for interaction design research in HCI. In Proceedings of the SIGCHI conference on Human factors in computing systems (pp. 493–502).

Wolff, A., Wermelinger, M. and Petre, M., 2019. Exploring design principles for data literacy activities to support children’s inquiries from complex data. International Journal of Human-Computer Studies, 129 (41–54)

**For co-design workshops, we often base our approach on:**

Huybrechts, L., Dreessen, K., & Schepers, S. (2012, August). Mapping design practices: on risk, hybridity and participation. In Proceedings of the 12th Participatory Design Conference: Exploratory Papers, Workshop Descriptions, Industry Cases-Volume 2 (pp. 29–32).

Elizabeth B.-N. Sanders & Pieter Jan Stappers (2008) Co-creation and the new landscapes of design, CoDesign, 4:1, 5–18, DOI: [10.1080/15710880701875068](https://doi.org/10.1080/15710880701875068) & Design Probes – Bill Gaver, Tony Dunne and Elena Pacenti. 1999 Design: Cultural Probes. Interactions, 6 (Jan./Feb. 1999), 21–29.

Lorraine Hudson, Clement Amponsah, Josephine OhenewaBampoe, Julie Marshall, Nana Akua Victoria Owusu, Khalid Hussein, Jess Linington, Zoe Banks Gross, Jane Stokes and Róisín McNaney. 2020. Co-designing Digital Tools to Enhance Speech and Language Therapy Training in Ghana. In Proceedings of CHI ’20: CHI Conference on Human Factors in Computing Systems (CHI ’20), April 25–30, 2020, Honolulu, HI, USA. ACM, New York, NY, USA, <https://doi.org/10.1145/3313831.3376474>

James Nobles, Clare Thomas, Zoe Banks Gross, Malcolm Hamilton, Zoe Trinder-Widdess, Christopher Speed, Andy Gibson, Rosie Davies, Michelle Farr, Russell Jago, Charlie Foster and Sabi Redwood (2020) Let’s Talk about Physical Activity”: Understanding the Preferences of Under-Served Communities when Messaging

Physical Activity Guidelines to the Public. International Journal of Environmental Research and Public Health ( IF 2.468 ) Pub Date : 2020-04-17 , DOI: [10.3390/ijerph17082782](https://doi.org/10.3390/ijerph17082782)

**More specifically, in a broadcast environment, we also use this:**

Evans, M., Kerlin, L., & Jay, C. (2015, April). “I Woke Up as a Newspaper” Designing-in Interaction Analytics. In Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (pp. 477–488).

**In playful game-based data sense-making, we are inspired about these:**

Wolff, A., Valdez, A.M., Barker, M., Potter, S., Gooch, D., Giles, E. and Miles, J., 2017. Engaging with the smart city through urban Data Games. In Playable Cities (pp. 47–66). Springer, Singapore.

Barker, C. (1977) Theatre games: a new approach to drama training. London: Methuen.

**When we are linking data and arts in knowledge creation and management context we turn to:**

Stewart-Hall, R. and King, M. (2018) Artists, Data, and Agency in Smart Cities. In Givoanni Schiuma and Daniella Carlucci (eds.) Big Data in the Arts and Humanities: Theory and Practice. Taylor & Francis Group, Auerbach Publications King. ISBN 9781498765855





—Arts-based examples—



# Arts-based example 1

Photos are taken by  
photographer Maiju Saari,  
artistic design by Anne  
Pässilä, graphic design  
Laura Mellanen, actors  
Mari KanervaNiemi,  
Minna Partanen and  
Heikki Hagman.



Imagine Ava, Sophia and Milo working in your community with you focusing on the lived experiences of children and young people living in a suburb. Your interest being their agency in public service and answering following question: How do children and young people experience social life, healthcare and youth service in this district? Together you are finding a very practical context where and how to inquire what is meaningful for children and young people. For example, you might start with inquiring what is a burning issue that worries children and young people, and alongside this you might be interested in their dreams related to services designed for them.

After finding a practical burning question Ava, Sophia, Milo a group of young pupils from

the same school and you would sit together to imitate and illustrate, visualize, dramatize service situations and care practices ‘as is’, as young people (one of them is Noah) have experienced it. You would have several shoots around issue as it is experienced with a playful mode and slowly get towards more complex service situation discussing what causes the perplexity in them. You would be using arts-based illustrating as a communicative tool.

Rather than asking Noah, how did you think in that perplexed care situation you would be asking *Noah, what do you think this role character in this perplexed situation is thinking?* You could also investigate a perplexed situation from different points of view. By this we mean that the same specific situation would



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Heikki Hagman.



be interpreted from a caretaker, children, parents, civic officer's role or any other person who is involved in that situation.

You might wonder: *What arts-based approach brings to the setting.* For example, with the help of visual props – design specific to artful inquiry or a collection of images you have gathered from art-history books – you may organise a space for dialogical ideation. Following images are called Theatrical Images (following photos are examples of them) and Ava has been using them in inquiring people's emotions, tensions, hopes and needs.

Ava: Arts link the imaginations and emotions into practices, and that would let us to start to create scenarios, which could be described 'as if' situations. 'As if' is linked to imaginative thinking and it allows us to sense how young peo-

ple would like the health, social and youth care services to be felt like.

Milo: Isn't it about empathy?

Ava: It can be that too. Theater director Augusto Boal's (1995; 1979/2000) life work in a theater of oppressed was fundamentally based on building social justice and empathy (in a context of morality and ethics when it is sitting next to criticality) in society. Also psychiatrist, psychosociologist, and educator Jacob Leavy Moreno's (1846;) life work has psychosociolistic approach to empathy building as well as various forms of art therapy. For example drama therapist Carl Rogers (1942; 1980) and Sue Jennings (2000) had a significant influence in the field of drama education when working in their own humanistic way in the





Samantha Jänis is friendly, super curious about science, can not always remember is 2+2 a carrot or something else.



WOW-GRETA-WOW has lot of super powers and loves nature, forest and butterflies, especially golden butterflies.



This is a task card tested in March in Lahti, Finland with an international urban studies program.

field of empathy using gestalt in transforming and gaining new awareness.

Sophia: Empathy is one core function of inquiry where you focus on appreciation. I feel that it is an access to polyphony. I recall how we used visual and storytelling methods in the first stage of planning where we were mapping the emotional landscapes of children's neighborhoods. We used two fictional characters as a pretext for storytelling when asking children to create a loving friend (a character) to Samantha Jänis and WOW-GRETA-WOW.

Samantha Jänis and WOW-Greta-WOW are examples of visual and fictional characters which can be used during artful inquiry, sketches done by Anne Pässilä, photos Antti Knutas.





This is a task card where fictional character Samantha Jänis is bounding to hopeful future scenarios, it can be used as a playful roadmap.

Milo: \*Yes, do you remember Ilona, one of the participants? She drew so intensively and by drawing story told what kind of person is a loving friend and what kind of place is safe and what makes the spaces.\*

Milo, Ava and Sophia used Ilona's as well as other children's drawings as an artefact to talk about their emotions related to neighborhood.

Ilona's drawing about safe place where she would take Samantha Jänis (where Samantha would feel good and inspired).

Pretext of sharing experiences started with safe places and with the help of fictional characters they could also talk with Ilona what places she finds unsafe, these inquiries were made using aesthetic distancing: "Ilona would you tell which places Samantha Jänis does not want to go in this place you draw which Samantha Jänis finds unsafe?" Then Ilona started to tell what Samantha Jänis is afraid, she said that adults behind R-kioski (corner shop) are behaving oddly, they are very loud and move unpredictably, she also explains that she drew them behind R-kioski because she would then not to be there, she also said that there is no worries because she is always with her granny or mother over there, and granny is powerful, no one dares to behave

badly when she is around. Sophia knew that often some adults gathered around there to drink beer and socialize because they did not have money to go to the nearby pub.

All these conversations with children were audio recorded and through them Sophia, Milo and Ava designed an emotional map of the area.

The road map can be used in the next stage of planning with city officers interested in citizens – specifically children – lived experiences about safety.





Authors: Md Tanvir Hasan, Annika Wolff, Antti Knutas, Anne Pässilä, Lasse Kantola

# Case Study LUT 2022

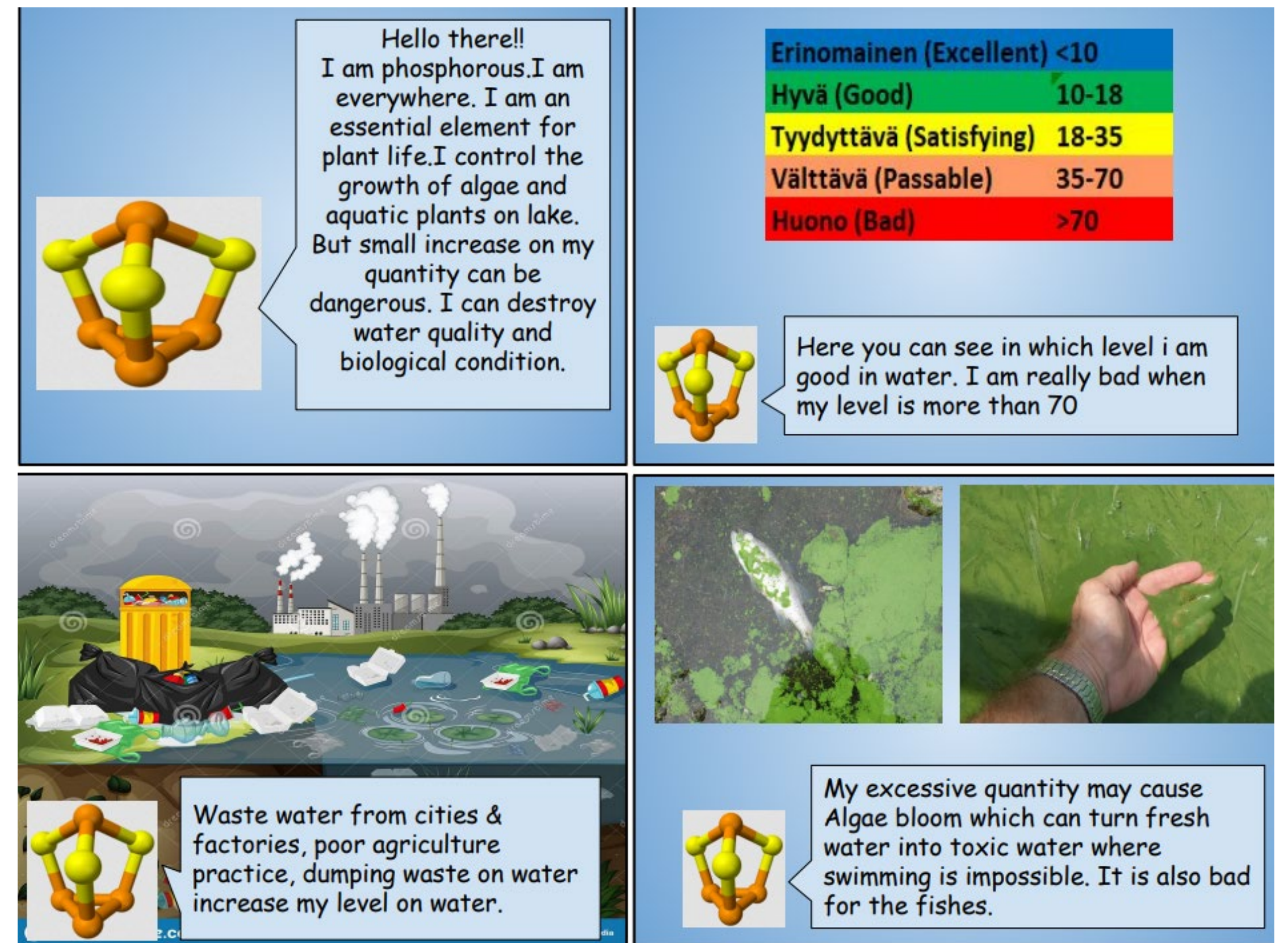
| Image by Md Tanvir Hasan.

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ACM ISBN 978-1-4503-9156-6/22/04.  
<https://doi.org/10.1145/3491101.3503561>

Wiki article abbreviated by: S M Tahsinur Rahman, Taiwo Bamigbala. LUT University.

## Finnish Lake Data Curation Using Data Comic

In this case study, the authors explored how data comic which is an already existing data-driven story telling method can be used to improve sense-making of data within a co-design process. They are aware that not everyone has the competence to interpret raw data and that learning data skills during co-design processes is almost impossible since the process is usually time-bound. In order to solve the challenges involved in upskilling and data manipulation during design process, they used data comic technique to curate data by converting the comic panels into a card game so that it can be used interactively and collaboratively in a co-design situation.





Students who are mostly teenagers from diverse backgrounds were invited to a workshop. The students were led through the process of engaging with curated data to make sense of water pollution in a selected Finnish lake since the 1970s and raise awareness towards environmental pollution. The workshop was based on the concept of art-based method called data drama where a mythological character who supposedly came from the future asked for the assistance of the participants in explaining what happened to the Finnish lake in the past based on the knowledge the participants have derived while engaging with the card games. The aim of the workshop is to determine whether data comic makes learning process easier and also investigate the usefulness of card games in understanding the co-design process.

The workshop participants were divided into groups based on a matchmaking game process. Afterwards card games that have been designed based on the concept of data comics were administered to participants in each of the group. The participants were asked to play the game and afterwards the workshop facilitator engages the participants in discussion based on the content of the games they have played. A mythological character thereafter asked questions from the participants and the participants provide answers by making sketches based on history of the lake which they have learnt from the card games. At the end of the workshop, surveys were administered on both the participants and facilitators in order to understand how the data comic and card games affected participants output.

The results and lessons learnt from the case study indicate that;

- ▶ Data comic is an interesting and easy way of data visualization
- ▶ An expert is needed to first curate the data into comic formats for easy sense-making
- ▶ Card games improve interaction and encourages active participation in co-design process
- ▶ Combination of art-based method with card games helps participants to understand data quickly and support collaborative aspect of data sense-making
- ▶ Art-based method framing is capable of turning participants from passive recipient of data into data communicators

- ▶ Data comic in co-design is capable of making participants relate their learnings to a real-life context
- ▶ Data comic is very effective in conveying information for collaborative ideation in co-design scenarios where participants are neither data nor domain experts but less effective and unnecessary where many are already data experts

Read more information about the [Data Comic](#) method abbreviated from the LUT Case Study.



Ryhmätyö



Participants interacting during the workshop. The image is a link to the video.

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# Case Study VRT 2022

Article source: Catho Van Den Bosch, Nikki Peeters, and Sandy Claes. 2022. MoreWeather Tomorrow. Engaging Families with Data through a Personalised Weather Forecast. In ACM International Conference on Interactive Media Experiences (IMX '22), June 22–24, 2022, Aveiro, JB, Portugal. ACM, New York, NY, USA, 10 pages. <https://doi.org/10.1145/3505284.3529972>

Wiki article abbreviated by: S M Tahsinur Rahman, Taiwo Bamigbala. LUT University.

## *More Weather Tomorrow, Engaging Families with Data through a Personalized Weather Forecast*

In this case study, the authors presented the design of a video-based data storytelling application that enables families and their children to explore and interpret historical weather data through a personalized weather forecast. In today's world, global warming and the Covid-19 pandemic has cast a shadow and they cannot be fully grasped in everyday life by citizens as making sense of these data could be challenging. Data-driven storytelling techniques offer a reliable and interactive approach to enhance data literacy skills. The

inclusion of interactive data representations in video offers a more accessible way for media producers to transition to data storytelling.

Families and children were invited to participate in interpreting historical temperature and precipitation data. The design of this personalized data video storytelling focused both on adults and children in order to encourage families to experience the data video and make sense of these data together. The personalized data video story in the form of a weather forecast application was showcased at a 2-month temporary interactive exhibition on weather, organized by a family television channel. At the same time, a comparative study with the same application was executed at home, where 19 (groups of) participants



Participants interacting with application on touchscreen.





participated. In addition to this, an in-the-wild study was conducted at the exhibition for 5 days to explore how several internal story designs and external context influenced the participants narrative engagements, emotional commitment, and contemplation.

During the exhibition, the participants were asked to input their birthday on the interactive screen. The user in turn is presented with an infographic containing the detailed weather of that exact date. It also includes the various kinds of items one might have needed on that day to carry with them. In addition to that, the screen also showed further information related to weather data from that date till 2020 which portrays the change of weather over the years. Afterwards, similar weather data dated to 1920 was also displayed. At this point, the facilitator interacts with the user by showing more data related to temperature of the day a participant was born and the change of temperature of the same date over

the years due to climate change. At the end, the participants were asked to answer some questions to collect further data.

The design recommendations uncovered during the case study are mentioned below:

- ▶ Unpredictability of the environment encourages families to engage longer with data
- ▶ Connecting data to memories supports reflection
- ▶ Connecting data to memories supports retelling
- ▶ A familiar presenter establishes trust and encourages data exploration
- ▶ Exchanging data-literacy skills supports family interaction

Read more about the [Personalized Data Video Storytelling method](#) abbreviated from the VRT Case Study.



Engaging young audience in scientific weather data. The image is a link to the video.

## References

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Jeremy Boy, Francoise Detienne, and Jean-Daniel Fekete. 2015. Storytelling in Information Visualizations: Does It Engage Users to Explore Data?. In *Proceedings of the 33rd*

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# Case Study KWMC 2022

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KWMC The Factory, Bristol, United Kingdom. KWMC The Factory - Rethink ReMake Recycle.(2020, December). Exploring Simple and creative ways to reduce household waste. <https://kwmc.org.uk/wp-content/uploads/2021/03/ReThink-ReMake-ReCycle-Zine.pdf>

Wiki article abbreviated by: S M Tahsinur Rahman, Taiwo Bamigbala. LUT University.

## *ReThink-ReMake-ReCycle-Zine*

Aim of the case study was to work towards waste reduction locally (and globally), by developing a shared understanding of ways to reduce household such as paper and plastics. We unpicked the data behind what we waste, mapping out the different types and properties of waste materials, and following a process of creative ‘Design Thinking’, prototyping and making to try and identify sustainable solutions and alternatives.

The case study was delivered online through interactive workshops, we explored the scale and environmental impact of common household waste materials, such as paper and plastics. During the workshops, we highlighted

and shared open data behind what people waste in their daily lives. This was followed by utilising digital tools and a creative process to co-design, prototype and test out sustainable alternatives.

For the case study targeted at local residents of South Bristol; 22 households signed up, 48 people participated, among them 34 were adults and 14 of them were children. Due to covid, the workshops took place virtually in November and December of 2020. The sessions included mixed presentations and video content with group discussion. Each participant received an activity pack which included;



ReThink-ReMake-ReCycle Zine-waste sorting game.





- ▶ Printed ‘waste audit’ sheets to measure household paper and plastic waste.
- ▶ Ingredients and tools for making bioplastic pine resin pots and gelatin – based plastic with agar agar.
- ▶ Safety clothing for bioplastics activities.
- ▶ A sewing kit, fabric, and towel for making washable, reusable cloths.
- ▶ A laser cut keyring made with recycled plastic sheet.

During the case study, three workshops had three different focuses. For session 1, the focus was on the question “How does waste affect our planet?”. For the 2nd session, the focus was on the topic “Plastics: Exploring recycled and bio plastics” and for the 3rd session, the

focus was on the topic “Paper: Tackle waste through design thinking”. In the 3rd session, a design thinking approach (Empathize, Define, Ideate, Prototype and Test) was adopted in order to allow us think of ideas and prototype how to tackle waste.

Learnings from the workshops are;

- ▶ It takes twice as much water to produce a plastic water bottle as the amount of water it can hold
- ▶ Trillions of cigarette butts are thrown into the environment every year, turning into microplastic pollution.
- ▶ Plastic materials can be recycled to make Stormboard, Fishy filament, greencast and smile plastics.

- ▶ Creation of all-purpose household cleaning liquid and coconut oil deodorant to be stored in used plastic containers.
- ▶ Bioplastic pine resin pot can also be made at home with waste plastics.

The outcome of the case study is published in a zine. Interested parties can read the [zine](#) to find out what was discovered during the case study, hear participant’s stories and advice for reducing waste, and try out a range of tutorials, activities and puzzles that are inspired by the project.

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- <https://medium.com/@waecorp/bottled-water-the-devil-and-the-deep-sea-1off5dfd17fb>
- <https://www.tigtagworld.co.uk/film/biodegradable-and-non-biodegradable-materials-PRMoo612/>
- <https://www.theguardian.com/environment/2020/jun/08/more-masks-than-jellyfish-coronavirus-waste-ends-up-in-ocean>

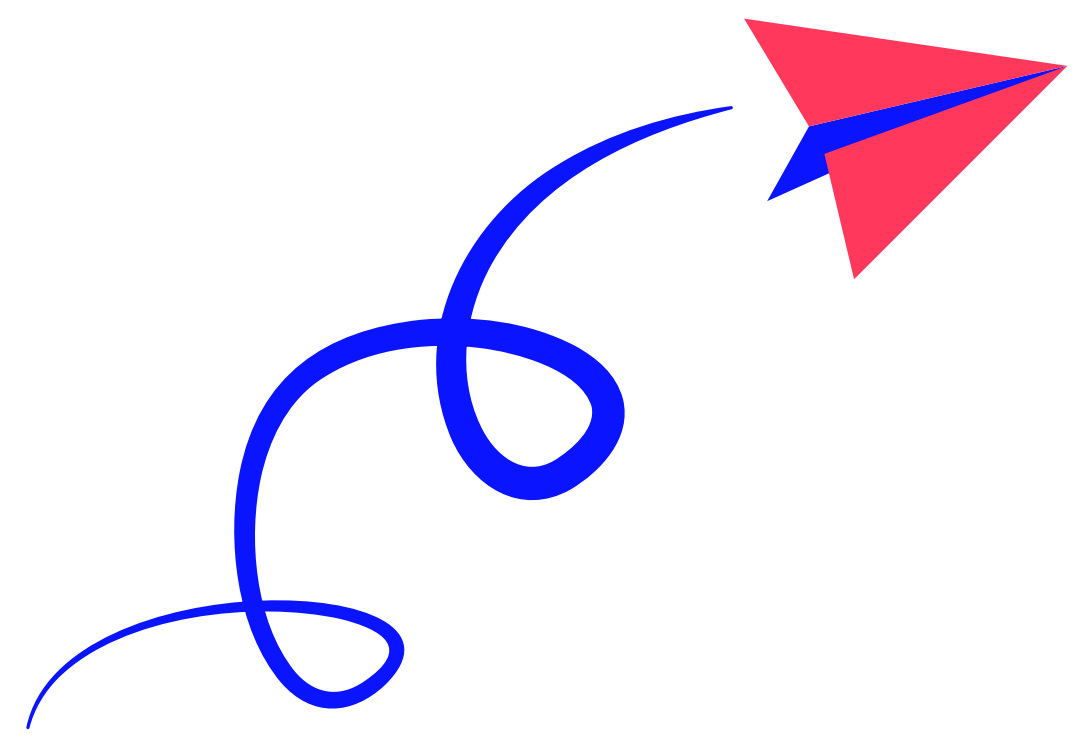


# Inspiring practitioners & researchers

Practitioners and researchers  
who might inspire you:

- ▶ Creative service design and design thinking methodologies with arts-based approaches:
  - ▶ <http://www.antonioarnino.com/>
- ▶ Critical creativity, education with drama-based approach:
  - ▶ <http://allanowens.com/>
- ▶ Visual Storytelling and sense-making
  - ▶ <http://raquelbenmergui.com/>
- ▶ Kimberley Powell
  - ▶ <https://sova.psu.edu/profile/kimberlypowell>
- ▶ Diane Conrad
  - ▶ <https://www.ualberta.ca/education/about-us/professor-profiles/diane-conrad>
  - ▶ [https://link.springer.com/chapter/10.1057/9780230100640\\_18](https://link.springer.com/chapter/10.1057/9780230100640_18)
  - ▶ <https://sites.ualberta.ca/~dhconrad/ResearchProjectsPages/InterdisciplinaryArtsBasedPage.html>
- ▶ Joe Norris
  - ▶ [http://www.joenorrisplaybuilding.ca/?page\\_id=1143](http://www.joenorrisplaybuilding.ca/?page_id=1143)
  - ▶ <https://www.tandfonline.com/doi/abs/10.1080/08929092.2000.10012516?journalCode=uytj20>
- ▶ Nena Mocnik. University of Turku
  - ▶ [https://research.utu.fi/converis/portal/Person/19011536;jsessionid=93b64f340a1608a9f29420c902f9?lang=en\\_GB](https://research.utu.fi/converis/portal/Person/19011536;jsessionid=93b64f340a1608a9f29420c902f9?lang=en_GB)





# —Methods—



Authors: Anne Pässilä

# Citizen story

## Summary

**Art-form<sup>1</sup>:** Visual and performing art

## Requirements

- ▶ Time: 90 minutes
- ▶ Difficulty<sup>2</sup>: ☆
- ▶ What you'll need: Theatrical images, pencils and paper for mapping
- ▶ Participants: Any age group over 12 year of old

## Description

### Steps

1. Choosing a Theatrical Image that describes a burning issue related to what has identified to be improved
2. Creating a story with the help of Theatrical Image by answering following questions:
  - ▶ What is happening in the situation the image is representing?
  - ▶ When and where does it happen?
  - ▶ Whom is involved in that situation?
  - ▶ Who is the main character? Who else was involved?
  - ▶ How did the character act and react?

- ▶ How did the other characters feel?
  - ▶ What do they say to each other?
  - ▶ What are their hidden and deep thoughts?
  - ▶ What is the atmosphere of the situation and is there tension and if there is what is the cause?
  - ▶ What kind of emotions are emerging and what kind of reactions do these emotions cause?
3. Sharing your story in small groups
  4. Mapping all the burning issues visualizing how they are related to issue what has identified to be improved



| Citizen story

## Which stage to use it in

- ▶ Framing

## Why it is useful

Fast way to include every participants point of views as well as including everyone to framing the issue that has to be improved.

## How to document

Observing notes, video or audio (stage 3) and photos (stage 4 maps)

## Analysis

Discourse analysis, thematic analysis or ethnodrama

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.



Authors: Priscilla Van Even, Bieke Zaman, Karin Hannes

# Materialising

## Summary

**Art-form**<sup>1</sup>: visual art

## Requirements

- ▶ Time: 90 minutes
- ▶ Difficulty<sup>2</sup>: ☆☆☆
- ▶ What you'll need: template design diary, pens and crafting materials such as markers, paint, cardboard, coloured paper etc.
- ▶ Participants: age 8+

## Description

### Steps

1. The participants comprehend what problem they want to solve with the design.
2. They make a basic drawing of the installation or prototype they want to create to express their idea. This is an optional step. It is also possible to design without a preconceptual plan and think 'with' the materials.
3. They inquire the materials that are available to create a fictive prototype or installation and use the materials to give shape to their idea/solution.

4. The participants write their reflections and ideas down in a design diary.

### Which stage to use it in

- ▶ Ideation
- ▶ Design

### Why it is useful

This method is useful to build prototypes or installations, visualize ideas and experiment freely with materials. Materialising can also be used to stimulate a discussion around what has been done and to engage different participants.

Example of materialising, © KU Leuven RETINA project



## How to document

The process and results will be captured through photos and videos. Participants write down their experiences and reflections throughout the design process in a design diary.

## Analysis

The different materialised design outcomes and the audiovisual materials captured during the creative process can be analysed to distil different themes.

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.



Authors: Anne Pässilä

# Fictional Character

## Summary

**Art-form**<sup>1</sup>: Visual and performing art

## Requirements

- ▶ Time: 90 minutes
- ▶ Difficulty<sup>2</sup>: ✨
- ▶ What you'll need: Theatrical images, pencils and paper for mapping
- ▶ Participants: Any age group over 12 year of old

## Description

### Steps

1. Choosing a Theatrical Image of Samantha Jänis and describing burning issue related to what has identified to be improved related to her/him/other
2. Creating a story with the help of Theatrical Image by answering following questions:
  - ▶ What is happening in the situation the image is representing?
  - ▶ When and where does it happen?
  - ▶ Whom is involved in that situation?
  - ▶ Who is the main character? Who else was involved?

- ▶ How did the character act and react?
  - ▶ How did the other characters feel?
  - ▶ What are they saying to each other?
  - ▶ What are their hidden and deep thoughts?
  - ▶ What is the atmosphere of situation and is there tension and if there is what is causing it?
  - ▶ What kind of emotions are emerging and what kind of reactions do these emotions cause?
3. Sharing your story in small groups
  4. Mapping all the burning issues visualizing how they are related to issue what has identified to be improved

## Which stage to use it in

- ▶ Framing

## Why it is useful

Fast way to include every participant's point of view as well as including everyone to framing the issue that is to be improved.

## How to document

Observing notes, video or audio (stage 3) and photos (stage 4 maps)

## Analysis

Discourse analysis, thematic analysis or ethnodrama

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

<sup>2</sup> 1-5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.





Authors: Priscilla Van Even, Bieke Zaman, Karin Hannes

# Scenario Writing

## Summary

**Art-form**<sup>1</sup>: literary art and performance art

## Requirements

- ▶ Time: 60 minutes
- ▶ Difficulty<sup>2</sup>: ☆☆☆
- ▶ What you'll need: paper, pencils, markers
- ▶ Participants: age +11

## Description

### Steps

1. The participants work in small groups. They brainstorm with their group about the scenario. They write their ideas on post-its.
2. The different post-it notes are compared with each other and the group members look for clusters in the ideas (e.g. similarities), categorize and/or combine these ideas and prioritize them.
3. Drawing (visualisation) can support the development of the textual narrative.
4. They write the scenario.

Example of scenario writing, © KU Leuven RETINA project



5. The scenarios are presented to the other teams through a theatrical performance.
6. After each performance, other teams can ask questions and share their observations.

### Which stage to use it in

- ▶ Ideation
- ▶ Design

### Why it is useful

Through scenario writing people can express their ideas with a literary story in an engaging, evocative and expressive way.

### How to document

The written texts can function as documentation. There will also be video recordings of the performances.

### Analysis

The different scenarios and the audiovisual materials captured during the performance can be analyzed to distil different themes.

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34-49.

<sup>2</sup> 1-5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.



Authors: Anne Pässilä

# Montage

## Summary

**Art-form**<sup>1</sup>: Visual art

- ▶ Make a montage. Select images, sounds and words which are juxtaposed to evoke feelings and thoughts while being in your favorite place in nature. Work as a team combining your skills. Document your montage and share it.

## Requirements

- ▶ Time: 1–8 hours or longer period
- ▶ Difficulty<sup>2</sup>: ☆

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. *Educational Research Review* 22 (2017), 34–49.

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

- ▶ What you'll need: Instant camera and group of people you feel comfortable to share your ideas with
- ▶ Participants: Any age group

## Description

### Steps

- ▶ Go to your favorite place (place that is relevant to project for example area that is to be improved or develop), you can walk in pairs or small groups
- ▶ Photograph what evokes your feelings and thoughts (have a drifting type of walk while observing place 15 minutes

to 45 minutes, stop and take a photos) and after that gather all together

- ▶ Organise a pop-up exhibition from your snaps and let conversation emerge about place and findings that catch your attention, talk about photos; what do you see in them and beyond related to place
- ▶ Write collectively creative expressions through interpreting photos, show your ideas, emotions and perceptions and reorganize photos to describe your feelings and thoughts
- ▶ Reflect together your montage and identify 5-10 most relevant issues you all share related to a place

you visited, it can be a visionary montage or provocative montage

### Which stage to use it in

- ▶ Design

### Why it is useful

- ▶ One way to talk about feelings – hopes, dreams, fears - related to specific place

### How to document

- ▶ Audio and photographing

### Analysis

- ▶ Content analysis



Authors: Anne Pässilä

# Impressions-on-the-wall -method

Inspired by Owens, A. and Barber, K. (2001) Mapping Drama. Carel Press Ltd. UK. British Library Cataloguing in Publication Data.

## Summary

**Art-form**<sup>1</sup>: Visual art

- ▶ Impressions-on-the-wall provides you an aesthetic distance to articulate and reflect your emotions and to share them with others

<sup>1</sup> under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

## Requirements

- ▶ Time: 1–8 hours or longer period (depending how deep and rich reflection is needed)
- ▶ Difficulty<sup>2</sup>: ✨
- ▶ What you'll need: newspapers, pencils, colors, mobile phones and digital platform (to share photos)
- ▶ Participants: Adult groups

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

## Description

### Steps

1. Draw a line of yourself on a large sheet of paper (you can use old newspaper pages)
2. Use the outline to represent “outer” and “inner” impressions/ senses/ feelings you have during this stage of participatory process
3. Paint and write (poetic writing) your impressions/ senses/ feelings on a sheet of a paper.
4. Document the making of this activity by taking photos.
5. Share your photos in digital platform established for this process.

6. Reflect your photos and try to make visible your emotions.

### Which stage to use it in

- ▶ Deployment

### Why it is useful

- ▶ One way to make invisible issues visible and include human-centred issues systematically to process.

### How to document

- ▶ Mobile phone photos which are shared via digital platform, recorded interviews of each or selected participants

### Analysis

- ▶ Hermeneutic analysis



Authors: Anne Pässilä

# Future Story

Attribution: Boal, A. (1995). *The Rainbow of Desire*. Trans. by A. Jackson. London: Routledge.

## Summary

### Art-form<sup>1</sup>: Performing art

- ▶ Make a future story by applying post-boalian still image theatre to future studies context. Theatre director Augusto Boal created a new genre of theatre focused on development and change, namely the Theatre of the Oppressed. Post-Boalian theatre practices are various types of theatre techniques that are applied to developmental learning

processes. The use of post-Boalian theatre practices focuses on the multi-voiced interpretation of existing situations; interpretation takes place between the theoretical frameworks of ‘as is’ and ‘as if’. (Pässilä, 2012)

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. *Educational Research Review* 22 (2017), 34–49.

## Requirements

- ▶ Time: 1 hour
- ▶ Difficulty<sup>2</sup>: ☆☆☆☆, requires skills and knowledge based on Augusto Boal’s Image Theatre, as well as awareness of spect-actor context (participants are both spectators and actors)
- ▶ What you’ll need: drama studio or any open space without tables and chairs, music, lights if possible
- ▶ Participants: Any age group (from 10 years old)

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.



## Description

### Steps

1. Framing – focus is on imagining future
  - ▶ Contract
  - ▶ Warming up and modeling Still Image -technique
2. Creating small groups (3–6 person in each) and giving a task to build together three Still Images: Past, present and future related to issue which have identified in previous stage. First sketches of Still Image are formed fast (3–4 minutes)
3. Each small group performing three Still Image while other groups are observing, facilitator inquiring observers what do they find out Still

Images related to previously identified issue that is to be improved

4. Providing data related to the issue that is to be improved
5. Creating in the same small groups new Still Images about future including data to it while facilitator photographing Still Images and again inquiring observers what do they find in them about future.
6. Grouping instant photos about Still Images and collectively naming them and visioning what kind of a future would be meaningful
7. Discussing steps towards meaningful future (can be also sketched as a road map)

### Which stage to use it in

- ▶ Design

### Why it is useful

- ▶ Fast and playfully light way to idea generate future scenarios and visions and include data to process

### How to document

- ▶ Instant camera or digital camera & printer to document each Future Still Images

### Analysis

- ▶ Content analysis and Delphi method





Authors: Allan Owens described by Anne Pässilä

# Story Capture

Attribution: Owens, A. (2019)  
Story Capture. In Raguel Benmerqui,  
Allan Owens & Anne Pässilä  
(eds.) Beyond Text – arts-based  
methods in research, assessment  
and evaluation, p. 71–78. [https://  
beyondtext.weebly.com/](https://beyondtext.weebly.com/)

## Summary

**Art-form**<sup>1</sup>: Performing art and specific form  
of a storytelling and Playback theatre (Jona-  
than Fox and Jo Salas, 1975)

- ▶ Story capture is a technique that can be applied to capturing the highlights from focus group or participatory design sessions and turning them into a narrative that is performed back to the group, to support reflection and prompt further discussion. It has its roots in design thinking and playback theatre. Origin of this method is in Playback theater.

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

- ▶ [playbacktheatre.org](http://playbacktheatre.org)
- ▶ Story Capture

## Requirements

- ▶ Time: 1 hour – several days
- ▶ Difficulty<sup>2</sup>: ☆☆☆☆☆, requires good listening and storytelling skills as well as dramaturgical understanding of applying playback theater into an inquiry context

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

- ▶ What you'll need: storyteller whom is focused on listening and documenting conversation for example in ideation or group work context
- ▶ Participants: Adults

## Description

### Steps

1. Framing – focus is on reflection
2. Contract
3. During session storyteller is radically listening what is being said and how and by whom
4. Storyteller makes notes to capture speech and sensing feelings
5. During a session (for example ideation session) storyteller highlights words and phrases through two lenses: a) as in the first stage of analysis and interpretation b) dramaturgically organising it to a form of story form
6. Storyteller turns the highlights (including each participant's point of view) into narrative

7. Storyteller plays back what has been heard to participants including music and performative elements to it.

### Which stage to use it in

- ▶ Any stage where reflection space is needed

### Why it is useful

- ▶ This creates an appreciative space for participants' perspectives, it invites each participant's voice. It catches ideas in a rich and detailed way. The emphasis in this method is oral storytelling but this can also be taken the form of visualised storyboard, digital storytelling or animation.

### How to document

- ▶ Instant camera or digital camera & printer to document each Future Still Image

### Analysis

- ▶ Content analysis and Delphi method





Authors: Catho Van Den Bosch, Sandy Claes

# Storyboard

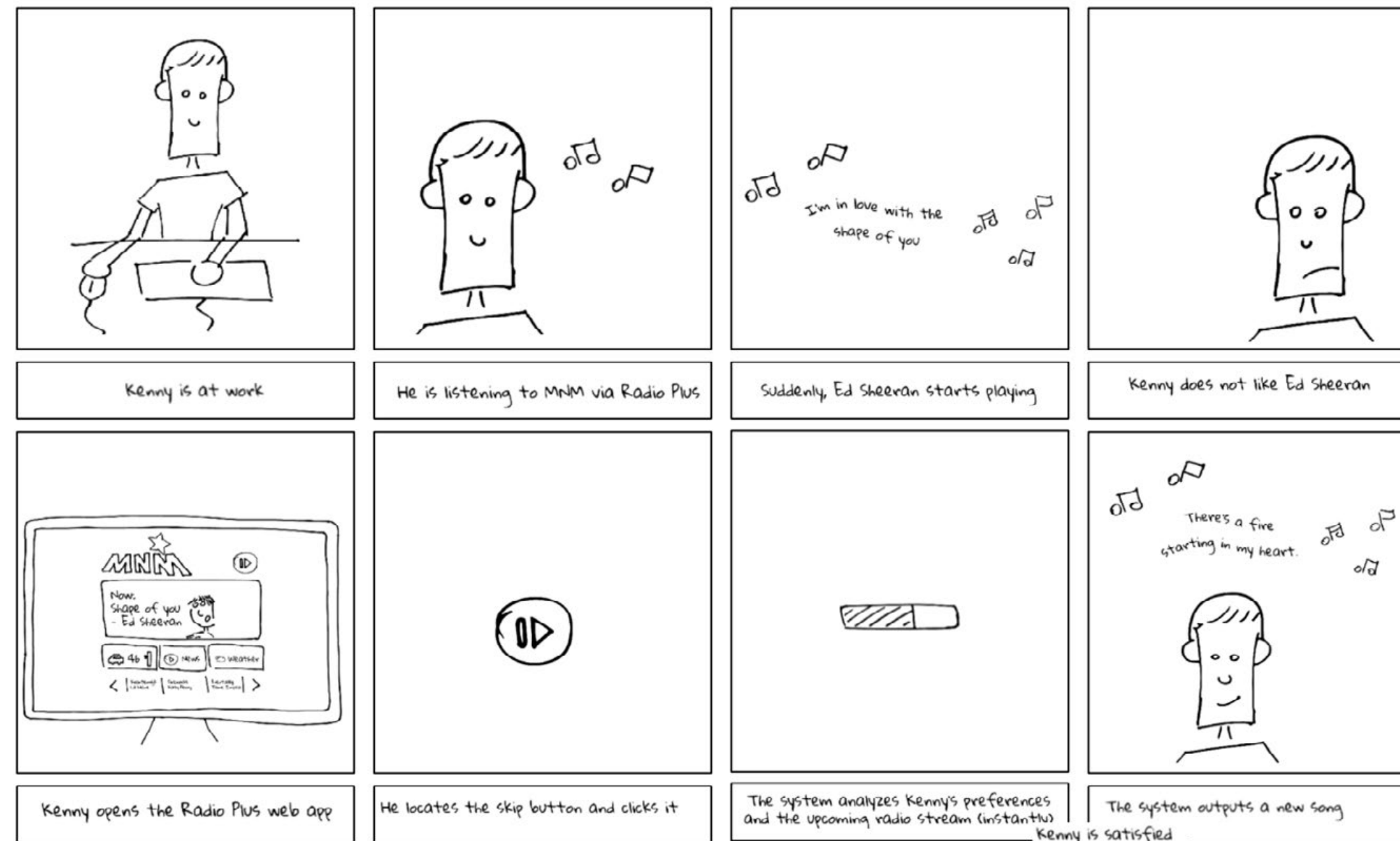
Attribution:  
<https://www.designkit.org/methods/35>

## Summary

**Art-form**<sup>1</sup>: Visual art

- ▶ (1. visual art / 2. moving images / 3. performing art / 4. live art / 5. literary art / multiple methods approach)

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.



## Requirements

- ▶ Time: 40 minutes
- ▶ Difficulty<sup>2</sup>: ☆☆☆ stars
- ▶ What you'll need: paper, pencils, markers
- ▶ Participants: Any age group over 12 year of old

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

Example of a storyboard

## Description

### Steps

1. Small teams brainstorm about a design challenge.
2. The next step is that they draw one or more ideas in a scenario, in a comic book-style. The participants do not have to visualize the whole story, they can focus on a specific interaction or detail. The quality of the drawings is not important, it is more important to fully think it through.
3. Text can help to make the drawings more understandable.
4. The storyboards are hung on the wall (like in an exhibition) and presented to the other teams.

5. Participants may ask questions and discuss the interactions that have been outlined.

### Which stage to use it in

- ▶ Identification, framing (early stages)

### Why it is useful

- ▶ Storyboards are quick, low-resolution prototypes. They are helpful to communicate first ideas in the early stages of a design process.
- ▶ The visual story can help to refine the idea, and it can also reveal who will use it, where and how.

### How to document

- ▶ Collect the storyboards and write down the feedback given by the other participants.

### Analysis

- ▶ Categorize the ideas in different groups, based on similarity. Use those insights in later design stages as different options.



Authors: Anne Pässilä

# Evocative visual storytelling

Attribution: Benmerqui, R. (2018)  
Making the invisible visible: evocative visual storytelling & visceral liminal documentation of process & sense-making. In Raguél Benmerqui, Allan Owens & Anne Pässilä (eds.) Beyond Text – arts-based methods in research, assessment and evaluation.  
<https://beyondtext.weebly.com>

## Summary

**Art-form**<sup>1</sup>: Visual art and dramaturgical scripting

This technique is intended to help people to be present in a situation, to use all senses, acknowledge subjectivity and make connections between ideas visible through the creation of shared artefacts via sketching techniques. Can be used to create shared, visual summaries of stories or alternative ways to view the discussions.

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<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

## Requirements

- ▶ Time: can be short synchronic activity or done during a longer process
- ▶ Difficulty<sup>2</sup>: ☆☆☆☆☆ stars, requires facilitation, listening, visualisation and dramaturgical skills
- ▶ What you'll need: paper and pencils (document camera is useful or can also be drawings shared on the wall or floor) or digital visual platform
- ▶ Participants: Any age group

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<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.



## Description

### Steps

1. Introducing and framing: making transparent that one of the facilitators is listening and visualising conversation and activities (articulating position and intention)
2. During conversation sketching and posting them on the wall or digitally
3. Organising sketches into a storyboard
4. Inviting participants to reflect and discuss what do they found out most relevant for the purpose they are working on

Example an Evocative report by artist Laura Mellanen & researcher Anne Pässilä 2013: <https://www.youtube.com/watch?v=LQasQFNYW5I>

**Usefull references:** Vince, R. and Warren, S. (2012) Participatory Visual Methods. In Gillian Symon & Catherine Cassell (eds.) Qualitative Organizational Research: Core Methods and Current Challenges. Sage.

Van der Lugt, R. (2000). Developing a graphic tool for creative problem solving in design groups. *Design Studies*, 21(5), 505–522.

Hyerle, D. (2009). *Visual tools for transforming information into knowledge* (2nd. ed.). London: Sage Publications Ltd

### Which stage to use it in

Any stage that needs reflection and inspiration

### Why it is useful

Evocative way to capture conversations; emotions, ideas, and visions. Creates a space for example action planning and strategy building

### How to document

Camera

### Analysis

Content analysis



Authors: Anne Pässilä

# Artful inquiry

Attribution: Based on Barry, D. (1996) Artful Inquiry: A Symbolic Constructivist Approach to Social Science Research. Qualitative Inquiry. Volume: 2 issue: 4, page(s): 411–438

## Summary

**Art-form**<sup>1</sup>: Multiple methods approach

Can be used to facilitate data collection about political and emotionally complex issues and is generally focused on collective, rather than individual, reflection about such issues. Can also be used to elicit narratives that capture the embodied experience and relationships to the data collected through scientific processes. This captures both interpretation of data and emotional components.

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<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

## Requirements

- ▶ Time: 1–4 hour Inquiry session
- ▶ Difficulty<sup>2</sup>: ☆☆☆☆☆ stars, requires skills and knowledge based on Augusto Boal’s theatre practice and Paulo Freire’s pedagogy, as well as data curating skills [Wolff, A., Wermelinger, M. and Petre, M., 2019. Exploring design principles for data literacy activities to support children’s inquiries from complex data. International Journal of Human-Computer Studies, 129 (41–54)]
- ▶ What you’ll need: drama studio or open working space
- ▶ Participants: Adults

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<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

## Description

### Steps

1. Framing a burning issue
2. Contract for sharing
3. Warming up (any theatre game that creates playfull atmosphere)
4. Starting in pairs: sharing an imaginative life line where burning issue is emerging. Giving a topic to it.
5. Creating small groups (3–6 person in each) and giving a task to articulate topics in context with the help of hot seating (drama convention where group interviews a person in role to build persona/characters in order to clairfy situated perspectives)
6. Searching data related to phenomen that is explored (identified as burning problem)
7. Reconstructioning a burning problem as an incident which allows participants to explore its dynamics, power tensions and basic assumptions
8. Identifying meanings
9. Drawing a map of how things are interlinking

### Which stage to use it in

- ▶ Identification, Design and Deployment

### Why it is useful

- ▶ It supports a multi-voiced interpretation of the data sets and enables understanding more about emotional and organizational/ societal dynamics as well as discovering interconnections between various actors' lived experience of the system in which participation is both encouraged and discouraged.

### How to document

- ▶ Video

### Analysis

- ▶ Ethnodrama





Authors: Catho Van Den Bosch & Sandy Claes

# Pretotyping

Attribution:  
[Pretotyping.org](https://pretotyping.org)

## Summary

**Art-form**<sup>1</sup>: Visual (and performing) art

- ▶ (1. visual art / 2. moving images / 3. performing art / 4. live art / 5. literary art / multiple methods approach)

## Requirements

- ▶ Time: 90 minutes
- ▶ Difficulty<sup>2</sup>: ☆☆☆
- ▶ What you'll need: crafting materials (e.g. cardboard, markers)
- ▶ Participants: creatives involved in UX research

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<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

## Description

Pretotyping (the ‘pret’ is for pretend) is a collection of creative methods to quickly test whether a product or service is viable before investing time and efforts in a working prototype.<sup>3</sup>

## Steps

1. Isolate the key assumption you would solve with the prototype.
2. Write down how the prototype solves this assumption in different steps (e.g. in a storyboard, in a user journey, etc.). Divide the participants

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<sup>3</sup> The article “[I woke up as a newspapers](#)”, by Michael Evans, Lianne Kerlin and Caroline Jay gives an example of how the pretotyping techniques could be applied in a workshop.

in different roles (e.g. pretend to be the prototype, pretend a user, etc.).

3. Enact the prototype and its journey in a staged setting.
4. Through this pretended play, evaluate whether the initial assumption is correct. The results may be used to develop a high fidelity prototype in a later stage.

## Which stage to use it in

- ▶ Identification, framing

## Why it is useful

- ▶ “Make sure you are building the Right it before building it right”





– Alberto Savoia (Google’s first Engineering director and originator of the prototyping technique)

- ▶ Prototyping is a cheap and fast method to gather insights in how people will interact with the product. Failing fast and cheap ultimately helps to develop a final product with a greater chance of succeeding on the market.

### How to document

- ▶ Document the prototyping efforts through photos and videos. After the experience, participants may create a written or visual reflection of their experience.

### Analysis

- ▶ Discussion in group of the prototyping experience and its reflection, which is followed by an in-group analysis.



Example of prototyping during a workshop





Authors: Anne Pässilä application from Allan Owens & Clive Holtham

# Reflexive Sketchbooks

Sketch by Anne Pässilä, photo by Antti Knutas



Attribution: Holtham, C. Owens, A. and Bogdanov, M. (2008). The use of reflective sketchbooks in professional contexts and at M Level, Said Business School, University of Oxford, August 7th–9th 2008.

## Summary

**Art-form<sup>1</sup>:** Draws on a range of traditions of different disciplines including visual art, architecture, engineering, film

- ▶ Can be used as a platform for critical thinking, reflection and valuing intuition alongside analytical thinking
- ▶ Reflexive Sketchbook

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

## Requirements

- ▶ Time: long process it is a place to make a space in the business of everyday
- ▶ Difficulty<sup>2</sup>: ✨️
- ▶ What you'll need: Paper, pencils or digital drawing application also theories subject to what you are exploring
- ▶ Participants: Adults

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

## Description

### Steps

1. Creating time and space for sketching, observing and reading
2. Contract for sharing with others
3. One way is to carry your reflexive sketchbook with you and learn to where and what to reflect and how to catch your thinking into a mode of sketches

### Which stage to use it in

- ▶ Is useful for any stage

## Why it is useful

- ▶ Some find it very useful for concentration, listening, observing and reflecting ongoing processes. It is also an empowering way to share your thoughts (requires trust and appreciation between those who are sharing)

## How to document

- ▶ Scanning paper versions to capture them digitally

## Analysis

- ▶ Content analysis

# Zines

## Information summarized from the research article

Biagioli, M., Pässilä, A. and Owens, A. (2021) The Zine method as a form of qualitative analysis. Jeff Adams & Allan Owens (eds) Beyond Text – Learning through arts-based research practices. Intellect LTD. pp. 186–200. ISBN 9781789383553

## Summary

**Art-form**<sup>1</sup>: The zine method is a process-based approach to qualitative analysis applying a multi-page technique. The project stakeholder records impressions and notions of a process before, during and/or after; with a wide range of symbolic, illustrative and textual means of recording afforded by the method. It constitutes a designed artefact and is notional, reflective, and interpretative. The method allows for the active use of subjective forms of expression and analysis in project construction, analysis, and development.

► Zines

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.



Sketch by Anne Pässilä, photo by Antti Knutas





## Description

### Requirements

- ▶ Time: long or short process which requires a time and place
- ▶ Difficulty<sup>1</sup>: ☆☆☆
- ▶ What you'll need: Zine paper, pencils and lived event you are observing and also theoretical framework of your study
- ▶ Participants: Research team members (including participants)

<sup>1</sup> 1-5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

### Steps

The zine method utilises a multi-page technique from the graphic arts for use by non-specialists. The zine, is a space where elements of a problem area or a solution can be mapped via the visual plane. Going beyond the single page format, the zine allows for multi-page and multi-dimensional expressions to come into contact with each other; for example, visual notions that have not been connected in the mind of the participant can be juxtaposed via this approach while still retaining their individual integrity in the single page.

1. Prepare Zine papers in advance
2. Create time for observing visualising (visual notes) discussions
3. Share and talk about observations
4. Make links around what you find

### Which stage to use it in

- ▶ Design

### Why it is useful

- ▶ It applies the visual prototype as an integral part of ideation, problem-solving, and innovation; rather than as a decorative prop. The participant has the ability to choose how to apply the method to their particular circumstance: express the problem to other group members or to oneself; come up with solutions; identify difficulties in the undertaking of the problem area; or use it as a presentation method in a narrative structure.

### How to document

- ▶ Scanning or photographing Zines

### Analysis

- ▶ Content analysis

Authors: Anne Pässilä

# Object theatre

## Summary

**Art-form**<sup>1</sup>: Performance art. Draws on a range of traditions of modern adult puppet theater.

## Requirements

- ▶ Time: 15 minutes pop-up example to 1,30 hours scripted and participatory performed
- ▶ Difficulty<sup>2</sup>: ☆ for pop-up, ☆☆☆☆☆ stars for participatory performed session
- ▶ What you'll need: objects, stage (pop-up can be created on the table with white or black cloth, lights, music,

a theme to investigate with the help of objects (and participatory performed needs dramaturgical knowledge for scripting, rehearsing and performing)

- ▶ Participants: All age

## Description

### Steps

1. Create a stage with a selection of objects
2. Identify a theme you want to explore together; for example power tensions or hidden thoughts
3. Choose an object which illustrates theme you decided to explore

4. Start to talk about the theme with the help of the objects. Create fast several set-ups which speaks about the theme

### Which stage to use it in

- ▶ Is useful for any stage where you need aesthetic distancing to organise space for thinking and talking

### Why it is useful

- ▶ We have identified this type of an Object Theatre being based on Bertolt Brecht's idea of the alienation effect, which breaks down the illusion of cathartic theatre. The idea of aesthetic distancing puts familiar, taken-for-granted issues in a new light, making the unfamiliar familiar and vice versa;

Sketch by Anne Pässilä, photo by Antti Knutas



everyday affairs and relationships are explored through metaphors or roles. This allows for reflection and reflexive thinking; participants sensuously explore different type of distance related to the issues at hand.

### How to document

- ▶ Still images and audio (you can also use these as a form of evocative reporting of themes)

### Analysis

- ▶ Discourse analysis

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.





Authors: Md Tanvir Hasan, Annika Wolff, Antti Knutas, Anne Pässilä & Lasse Kantola

# Data Comic

## Information summarized from the research article

CHI '22 Extended Abstracts, April 29–May 05, 2022, New Orleans, LA, USA © 2022 Copyright held by the owner/author(s). ACM ISBN 978-1-4503-9156-6/22/04. <https://doi.org/10.1145/3491101.3503561>

Wiki article abbreviated by: S M Tahsinur Rahman, Taiwo Bamigbala. LUT University.

## Summary

**Art-form**<sup>1</sup>: Sequential, Visual, and Performing Art.

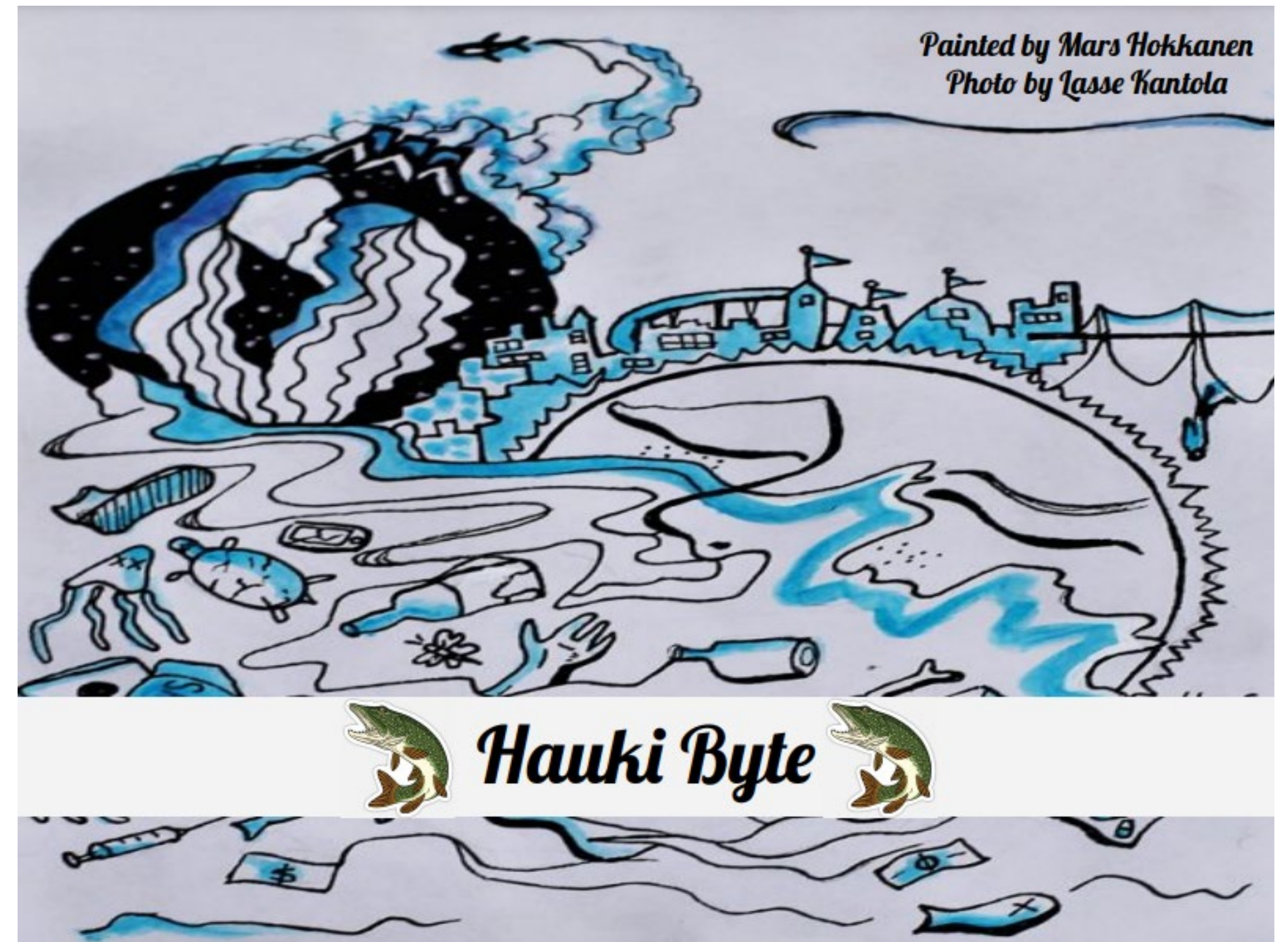
- ▶ Data Comic

## Requirements

- ▶ Time: Over six (6) hours
- ▶ Difficulty<sup>2</sup>: ☆☆☆
- ▶ What you'll need: Game cards, pencils, markers, and paper for sketching
- ▶ Participants: Students from diverse backgrounds (teenagers)

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. *Educational Research Review* 22 (2017), 34–49.

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.



Painted by Mars Hokkanen  
Photo by Lasse Kantola

Painted by Mars Hokkanen,  
Photo by Lasse Kantola



## Description

### Steps

1. Ice breaking session and introduction session among participants
2. Facilitator divides participants into groups based on a matchmaking game from the ice-breaking session.
3. Card games designed based on concept of data comic are provided to the participants in each group.
4. Facilitator engages the participants in discussion based on the content of the games the participants have played.
5. Afterwards, participants answer questions from e.g., a mythological character by making various kinds of sketches based on what they learnt from the card games.

### Which stage to use it in

- ▶ Ideation
- ▶ Data Visualization
- ▶ Engaging teenagers in participatory projects

### Why it is useful

- ▶ It helps to lower participatory barriers in co-design process for people who lack data literacy skills by making the process of understanding data to be fun, interactive, interesting, and straightforward.

### How to document

- ▶ Survey questionnaires, Videos and Photos

### Analysis

- ▶ Inductive thematic analysis, Qualitative analysis

### Further Reading

- ▶ Please Read more about the LUT Case study where this method has been applied.



# Personalized Data Video Storytelling

## Information summarized from the research article

Catho Van Den Bosch, Nikki Peeters, and Sandy Claes . 2022. MoreWeather Tomorrow. Engaging Families with Data through a Personalised Weather Forecast. In ACM International Conference on Interactive Media Experiences (IMX '22), June 22–24, 2022, Aveiro, JB, Portugal. ACM, New York, NY, USA, 10 pages. <https://doi.org/10.1145/3505284.3529972>

Wiki article abbreviated by: S M Tahsinur Rahman, Taiwo Bamigbala. LUT University.

## Summary

**Art-form**<sup>1</sup>: Narrative art, performance art, Interactive media art.

- ▶ Object Theatre

## Requirements

- ▶ Time: about 2 months to prepare for exhibition and from 4 to 6 minutes for participants to engage with the application during the exhibition
- ▶ Difficulty<sup>2</sup>: ☆☆☆
- ▶ What you'll need: large screen

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. *Educational Research Review* 22 (2017), 34–49.

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

for viewing, videos, printed infographic photos for visualization and personal tablets / screens for interactive participation.

- ▶ Participants: Both youngsters and adults.

## Description

### Steps

1. Start with presenting a data visualization that is easy to grasp, such as an infographic. This way, it appeals to a large audience. In the case of More Weather, users were requested to input their birthday on the interactive

screen. The user in turn is presented with an infographic containing the detailed weather of that exact date. It also includes the various kinds of items one might have needed on that day to carry with them.

2. Allow the user to personalize the presented data, e.g. through adding interactivity to the infographic. For instance, based on the infographic in More Weather, further information is displayed on the screen which shows weather data from that specific date till 2020 to show various weather changes over the years.
3. Design different narratives that each connect to underlying data points and can explain the data at hand. For

example, weather data of the same date from even earlier years such as from 1920's is displayed for interpretation.

4. Facilitator then presents the participants with more related data to draw comparison. For example, data related to temperature of the day a participant was born was presented in the case of More Weather in order to compare how climate changes caused increase in temperature.

5. Afterwards, participants answer questions based on the methodologies set by the researchers. For instance, in the case of More Weather, these questions are based on:

- ▶ Contemplativeness scale- 9 questions to measure the level of reflective thinking.

- ▶ Emotional Engagement scale- 6 questions to gain insights in the emotional engagement with characters such as the Facilitator/ youth news presenter.
- ▶ Narrative engagement scale-8 questions were asked to participants for gaining insights on how outside distractions affected their focus.

#### Which stage to use it in

- ▶ Data Visualization
- ▶ Engaging Imagination and emotions of participants
- ▶ When reaching out to different types of audience
- ▶ When participants prefer to decide for themselves rather than rely on explainer



VRT weather expo showcases ParCos's personalised weather forecast. The image is a link to the video.

#### Why it is useful

- ▶ It helps participants that do not have much experience with data visualization by making it possible for them to make sense of those data in a fun and inspiring manner.

#### How to document

- ▶ Observation notes, interviews, questionnaires, videos and photos.

#### Analysis

- ▶ Quantitative and qualitative analysis



# Näkkitär -partner-in-role

## Information summarized from the research article

Wolff, A., Pässilä, A., Owens, A. Kantola, (forthcoming 2022). Designing Data Dramas to build empathy to nature through collective acts, in: L. Heitlinger, S. (ed.) Designing More-than-Human Smart Cities –Beyond Sustainability, Towards Cohabitation, Oxfrod: Oxford University Press

## Summary

**Art-form**<sup>1</sup>: Applied drama and theater, Data Drama.

- ▶ “Drama conventions are ways of organizing time, space and action to create meaning. They allow all members of the group to participate in the drama in an organized and hopefully challenging way. Different conventions can allow for different levels of participation which often means that at one end of the scale individuals can contribute and participate without feeling that they

<sup>1</sup> Categories are based on Sara Coemans and Karin Hannes. 2017. Researchers under the spell of the arts: Two decades of using arts-based methods in community-based inquiry with vulnerable populations. Educational Research Review 22 (2017), 34–49.

have to do anything embarrassing.”  
Owens and Barber, 2000

## Requirements

- ▶ Time: several weeks to prepare costuming, make up, role character building, rehearsing of the role, framing into the context, relationship with the pedagogue in the room (partner)
- ▶ Bridging with the data set which in this case is the water quality data of the lake (from 1970 to 2000)
- ▶ Difficulty<sup>2</sup>: ☆☆☆☆☆

<sup>2</sup> 1–5 stars, 1 star being easy to facilitate and do not require deep artistic skills and 5 stars requiring deep level artistic skills.

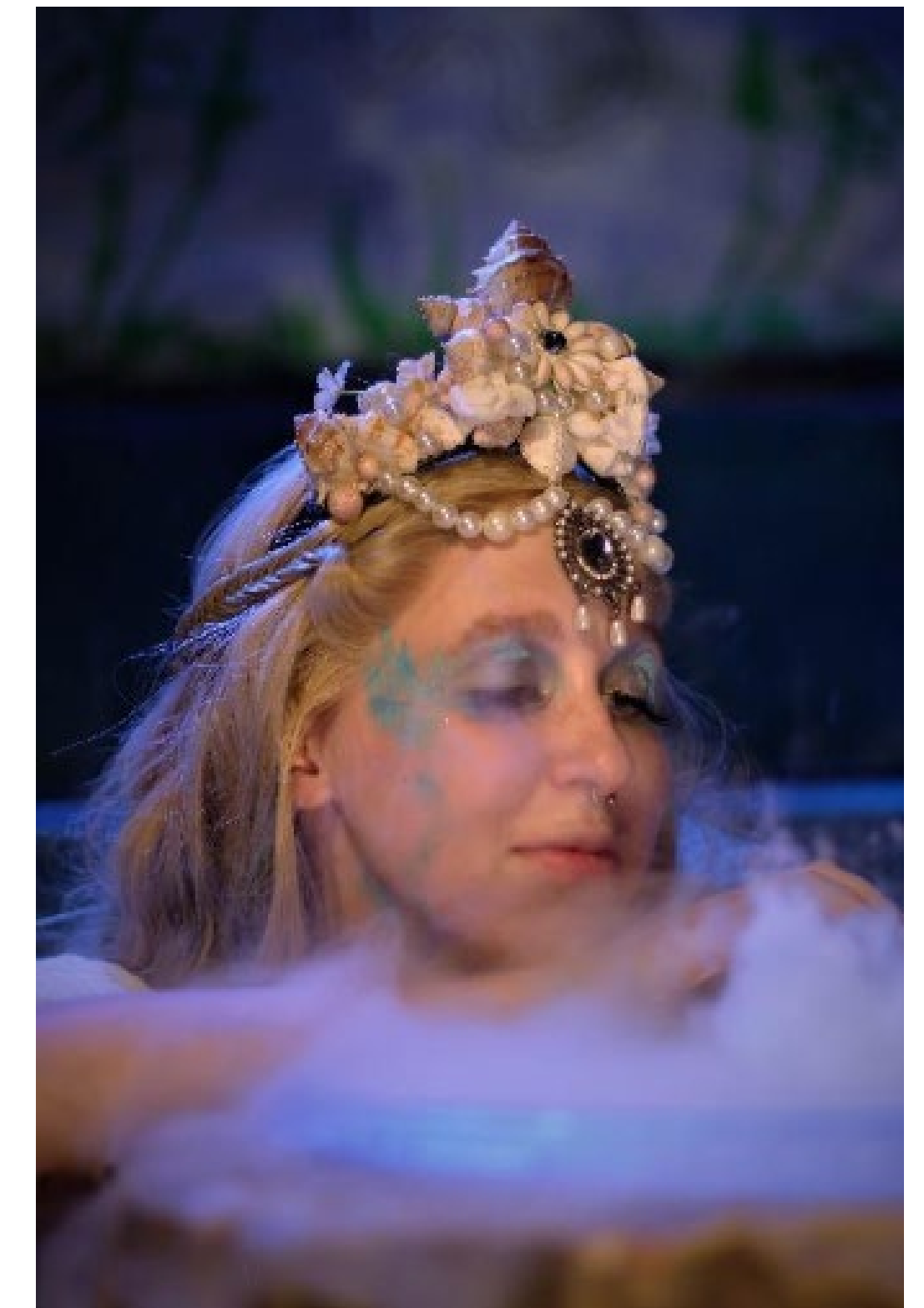


Photo: By Lasse Kantola



## Description

- ▶ What you'll need: A skilled actor, a skilled applied drama and theater practitioner as a pedagogue to facilitate the process, resources for theater scenery and props as well as data literature skills to make-sense of water quality data and to curate it to fit to a drama.

Participants: Any age group but needs to be tailored to a context.

Näkkitär provides the focus for the Data Drama. Information is let out very slowly by the role who carefully listens to contributions by participants and responds to signals from them and the applied drama and theatre pedagogue by using improvisation theater skills. Participants are aware of the person playing the Näkkitär-role and may well know them, but that person does not come out of role. The applied drama and theatre pedagogue collaborating with Näkkitär-character who uses the dynamic of the space between the participants and the role to create tension as implications are carefully explored.

### Steps

1. Facilitator framing dramatic challenge; Näkkitär needs help to make sense of the data, she cannot understand numbers and does not speak

2. Näkkitär-as partner-in-role is on stage, she slowly wakes up, points out the challenge to the participants, supports and develops the drama, and individuals in it, from within the drama.
3. Involves Näkkitär acting, requires conviction and the adoption of an attitude that can be shown in action .

### Which stage to use it in

- ▶ generating questions
- ▶ making-sense and questioning data
- ▶ making meaningful links to data

### Why it is useful

- ▶ to provide motivation for engagement with the data i.e. participants are 'helping' this character in her life,

to solve a problem that she has no chance of solving on her own

- ▶ to encourage critical reflection about the human dimensions of the data
- ▶ to imagine what data is and for what purposes

### How to document

- ▶ Focus group intervention documented either by audio or video and participatory observation

### Analysis

- ▶ Etnodrama and ethnotheater

### Further Reading

- ▶ Owens, A. and Barber, K. (2000) Mapping Drama: Teaching and Assessing Drama, Carlisle: Caryl Press.