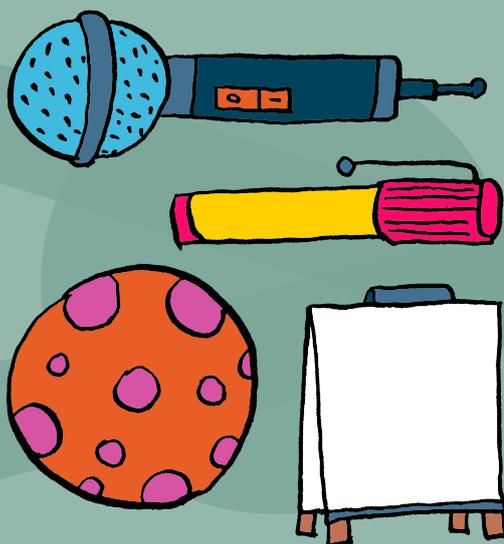


# LISTENING AND EMPOWERING

CHILDREN AND YOUNG PEOPLE  
IN SCIENCE IN SOCIETY ACTIVITIES



CATALYST

TRACES



eucunet  
European Children's Universities Network



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# WELCOME TO OUR GUIDE

## WHAT IS THE PURPOSE OF THIS GUIDE?

We believe that listening to and empowering young people is both a duty and an opportunity for anyone involved in science in society activities with young people. A duty, if we want to meet the needs of children's rights, to create a more inclusive society, or to enhance the relationship between science and society. An opportunity, as anyone brave enough to truly listen to children and work to empower them in their relationship with science will understand, is beneficial on individual, institutional and scientific levels. By listening to children, you feel better, you work better and you organise better events, you have a clearer understanding of the world in which science grows.

## WHAT WILL YOU FIND IN THIS GUIDE?

We offer practical tools on how to empower children in their relationship with science, helping them to progress towards a sense of ownership, by using their own motivations to achieve empowerment. This guide is a combination of short theoretical backgrounds, general tips, and a series of examples of training workshops that can help people interpret and implement the listening and empowering concept. We do not expect the training modules to be replicated as such: every situation is different and needs a locally adapted approach. But if we succeeded in reaching our aim, they can be used as examples; replicate parts, combine them with other activities and concepts, etc.

## WHO ARE THE "KEY PLAYERS" THAT WILL RECEIVE THIS GUIDE?

Several kinds of key players can help to transform science in society activities, into inclusive events that drive forward user-driven change in knowledge institutions such as universities and research organisations. According to the results of a research-action activity, we decided to focus on hands-on key players: those that act "on the floor" in direct contact with people, or that make those direct contacts possible. The modules therefore target three main categories of professionals: organisers of science in society activities; facilitators of science in society activities; scientists involved in science in society activities. You have a direct influence upon the public. Within your sphere of influence, you can be change-makers.

## WHO WROTE THIS GUIDE?

This guide has been coordinated by Raul Araujo, Camille Breton, Meriem Fresson, Matteo Merzagora, Vanessa Mignan and Paola Rodari with the essential contribution of the whole SiS Catalyst consortium.



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# BACKGROUND AND PHILOSOPHY



# BACKGROUND AND PHILOSOPHY

## THE EUROPEAN PROJECT SIS CATALYST

Our children are growing up in a world where our beautiful planet Earth is under direct threat from human activity, where technology is developing exponentially and where our ability to communicate globally is becoming commonplace.

If our institutions are to keep up with these changes, we believe that we need to address the fundamental issue of how we include children in the dialogue between society and our scientific and technological communities.

SiS Catalyst takes a broad approach to science as inter-connected branches of learning, because we believe that the solutions to the big research questions of the future will be found through interdisciplinary work, free from the artificial boundaries that we have created between academic disciplines. At the heart of this is our collective learning on an institutional level.

There are two main pillars of work within the project; mainstreaming science in society activities for children through the development of practical and easily delivered guidelines and support, and the mobilisation of the participating political processes required to effect change. There are three crosscutting themes: Listening to Young People, Recognising the Role of Students and Building the Dialogue with Key Players (organisers, scientific researchers and managers).

Our work focuses on young people currently unlikely to progress to higher education, and an important element of our project is to identify 'locally defined minority groups', constituting an important first step towards defining social inclusion targets and priorities on institutional, national and European levels. As this project involves children and students, we consider the ethical issues; producing guidelines with pan-European applicability. The impact of the project will be measured through the development of tools which enable Higher Education Institutions to self-evaluate and test their progress, both on a strategic and practical level, and to locate these within regional, national, European and global contexts.

Our ambitious four-year European Commission funded Framework 7 project, is one of the first Mobilisation and Mutual Learning (MML) Action Plans, leading to new ways of undertaking research and developing technologies which encompass societal needs and concerns.

## SCIENCE IN SOCIETY ACTIVITIES FOR YOUNG PEOPLE

Children and young people are key "targets" for science communication and science education activities. There are several ways in which they have the chance to get in contact with the world of scientific research and scientific knowledge. These naturally include schools (formal education), mass media, books, science festivals, documentaries, science centres and museums, science festival, art events, street science busking, science buses, science theatre, etc. as well as many so-called implicit or unintentional science communication encounters such as fiction films and TV series, comics, advertising, video games, etc. The purposes of these

encounters are very diverse: to educate, inform, entertain, provoke, debate, promote active citizenship, etc. In this guide, when we talk about science in social activity involving children, we refer to activities that aim to include children in debates on issues that link scientific knowledge with its social impacts.

In the training schemes and reflections presented here, we choose to focus on activities that involve direct, face-to-face interactions between adults and young people. These types of activities allow us to analyse and understand not only the information transfer process, but also the structuring of a relationship between young people and science. Consequently, they allow us to suggest practical and easy ways to implement training activities that, we hope, can promote a culture of listening and empowering in science in society activity as a whole.

### **WHAT IS LISTENING AND EMPOWERING?**

Rather than looking for empowerment and learning through the acquisition of knowledge, we would like to ensure that individuals can claim ownership of their personal learning pathway and link it to their own concerns. Usually, we tend to focus our activities on knowledge that is transmitted. Here, we want to emphasize the relationship that we create between young people and knowledge. We believe that we can foster a positive relationship with knowledge by presenting it as something that can become a tool to help you build the world you want to live in.

# LISTENING AND EMPOWERING: A CONTEXT AT A CROSSROADS

The SiS Catalyst project and the Listening and empowering in science in society approach are located at the crossroads of five different issues: Children's rights, Science with and for society, Diversity and minorities, Science governance, Social inclusion. Each one of these issues benefits from an extensive academic research and many field applications. However, they seldom merge. The effort to develop a mutual knowledge from these fields is one of the main achievements of the SiS Catalyst work. In the following, you will find one paragraph describing each of the main agendas associated with these issues.



## SCIENCE WITH AND FOR SOCIETY

The vocabulary used in European official documents through the different Framework Programmes, and in other national programmes, can help summarize the evolution of the thinking behind the interactions between science and society at large over the last few decades. Throughout the 1980s, terminology often referred to scientific literacy, and the main objective was to ensure that the largest number of people had a basic understanding of key scientific concepts. Such programmes were a sort of extension of the role of science at school. This was soon updated to the concept of a public understanding of science, before scholars and practitioners started to realize that the focus of the attention should not be limited to the information transfer process, but should focus on science communication as a way of widening the assessment of science, including very different social actors and wider society. This led to the concept of science *and* society first, and (to avoid the possible misinterpretation that science may be positioned outside society), science *in* society in the Framework programme 7. The progressive inclusion of the general public, the recognition of relevance of different forms of knowledge, led to another shift in terminology, transforming it into science with and for society.

This progressive transformation reveals an increasing attention to a dialogical approach in science communication, in turns entailing a need to understand the public agenda when approaching scientific information. In other words, there is a form of obligation for those who organise interactions between science and the public, to develop activities that allow the public to express their views.

Today's thinking has moved towards "public empowerment in science", and a focus on what the public

does with scientific knowledge, whose objectives may differ from the original purpose for which the knowledge was produced. The key issue is therefore to allow the public, and young people in particular, to define the relevance of the knowledge they encounter.

## CHILDREN'S RIGHTS

Some 193 countries in the world have signed the United Nations convention on the rights of the child (UNCRC).

One key article – article 12 – of the convention relates to the right of the child to be listened to: “States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.” This is a key element that shows how the child, formerly seen as the object of the rights (that as such needs protecting), becomes a right-holder, thus the subject, but also must participate in the process of elaboration and productions of his or her own rights.

As for all the conventions, the critical period is when it comes to implementation. In the case of article 12, the freedom of expression strongly depends on the organisation of concrete spaces in which the child feels secure and welcome to express his or her voice. The fact that children’s views are given “due weight” strongly depends on our capacity to provide the voice of the child with a real audience and a real influence (in other words, ensuring that the child has the certitude of being listened to, and that his or her views are taken into account).

Although the expression of views concerning scientific and technological choices was clearly not among the priorities of the Convention, since science and technology will strongly affect the world of tomorrow – and thus the life of the child – it is important that science in society activities seriously take this into account.

## DIVERSITY AND MINORITY GROUPS

The definition of diversity and of minority becomes particularly complex when dealing with an ideally objective form of knowledge such as science. In fact, in principle, there should be no “minority” with respect to science. Nevertheless, in the practical production of scientific knowledge, or in the access to the educational pathways that lead to scientific careers, many underrepresented groups are easily spotted, such as women or people with low socio-economic backgrounds. These are locally defined minorities, as the features that determine them as minority or underrepresented groups depend on a specific context. The very definition of science can be affected by socio-economic status. In fact, science is mainly perceived as a route to success by young people with a high socio-economic status, while for children with a low socio-economic status, it is mainly construed as a selective instrument, often seen as an unviable option for them to make progress in their educational pathways.

Each scientific institution should ask itself questions such as: How are we different when it comes to science (a so-called objective form of knowledge)? What are locally defined minorities? How can we create a framework to recognise diversities in cultural spaces? What duties do educational institutions have with respect to minority groups and underprivileged communities?

## SCIENTIFIC ENGAGEMENT, EMPOWERMENT, GOVERNANCE

A general trend in the offer for science in public can be summarised with the keywords 'engagement' and 'empowerment'. These elements were introduced in formal educational contexts in the learner-centred pedagogies back in the 1970s, and were quickly integrated into informal educational institutions such as science centres. However, only with the advent of the 2.0 revolution has the idea that citizens can have their say, even in highly specialised subjects, started to become mainstream. A combination of factors which link the evolution of modern democracy with the practices made possible by information and communication technologies, have thus led to several attempts to increase the level of participation of citizens in the production and governance of science. Formal and informal science education and science communication settings and institutions have therefore been asked to interpret their relationship with the public in terms of these keywords.

## SOCIAL INCLUSION

The issue of social inclusion has always been at the heart of science in society activities. In fact, the political value of science communication has been explicit in many of the cornerstones of science communication history, such as the foundation of the *Palais de la Découverte* in Paris in 1937 (that, in the words of the opening speech by Jean Perrin, “will ensure the progressive liberation of all human beings and [...] the possibility of opening to everyone the joy of art and thought”). Likewise, the Exploratorium in San Francisco in 1969 (according to its founder Frank Oppenheimer, “if people feel they understand the world around them or, probably, even if they have the conviction that they could understand it if they wanted to, then and only then are they also able to feel that they can make a difference through their decisions and activities”), or more recently in the Movement of *Éducation Populaire* or in the reflections of the Open data and DIY/makers galaxies.

An old topic, then, that needs constant renewal. What new knowledge and understanding can emerge from placing social inclusion and political engagement at the heart of the science communication debate? The issue of social inclusion cannot be reduced to an issue of access. Exclusion mechanisms can also operate once a specific community has indeed been reached, through implicit messages that define who is welcome and who is not welcome to a particular knowledge landscape. Moreover, the fact that science communication clearly forms a part of the solution in terms of democratising access to knowledge, does not mean that it does not also form a part of the problem, unintentionally reinforcing exclusion mechanisms with its language, role models, value priorities, etc. Being inclusive implies including the diversity of audiences in all phases of an initiative, from the design phase right through to governance and implementation. Once again, the key problem is not just reaching a community, but to ensure that the community actually participates, sets the agenda, has a voice, and that it contributes to defining the relevance of scientific knowledge in a specific context.

On the other hand, scientific knowledge can in itself constitute a tool for inclusion, via its crucial, ideal values – refusal of authoritarianism, objectivity, systematic doubt, sharing of knowledge, etc. These aspects can have a strong impact on situations where there has been a rupture of the social fabric, such as in post-conflictive areas. Socially inclusive science communication can assume a double scope: science communication can become a tool for fostering social inclusion, even beyond issues concerning science, and social inclusion can become a means of innovating science communication in general, taking it further than its specific, targeted initiatives.

# MOTIVATION, OWNERSHIP, AND EMPOWERMENT: LETTING THE AUDIENCE DEFINE THE RELEVANCE OF THE MESSAGE

One of the aspects to which we are committed to promote change, is the high level of control that science communication initiatives wish to maintain regarding the impact of their messages. Indeed, we believe that a lower level of control would contribute to a healthier relationship between science and society at large. Unexpected, often surprising forms of engagement of the general public or concerned citizens with science, need to be facilitated (from the desire to express a view on issues that affect us, even in the absence of technical expertise, to the increasingly strongly documented forms of activism, to the widespread tendency to find bottom-up, do-it-yourself solutions to problems we are facing). This can be achieved by setting up activities in which we let the audience define the relevance of the knowledge they are offered access to, and we renounce the control of which type of use (whether cultural or practical) will be undertaken with the shared knowledge.

The spirit of this toolkit can be summed up by three keywords: motivation, ownership, and empowerment. They summarise the very encounter of young people and science that we wish to promote, at least in informal, out-of-school contexts, and partially also (but with several obvious complications) within the school system, and that in our view can achieve the goals outlined above.

## **Motivation, or “Why should I know?”**

No learning or engagement is possible without motivation. When encountering scientific knowledge, children have a complex motivational agenda. This is often underestimated or neglected, with the risk of imposing the agenda of the institution or the person organising the encounter, confusing children’s true motivations with the desire to motivate them. Children should be allowed to define why they are interested, or not, in a specific piece of knowledge.

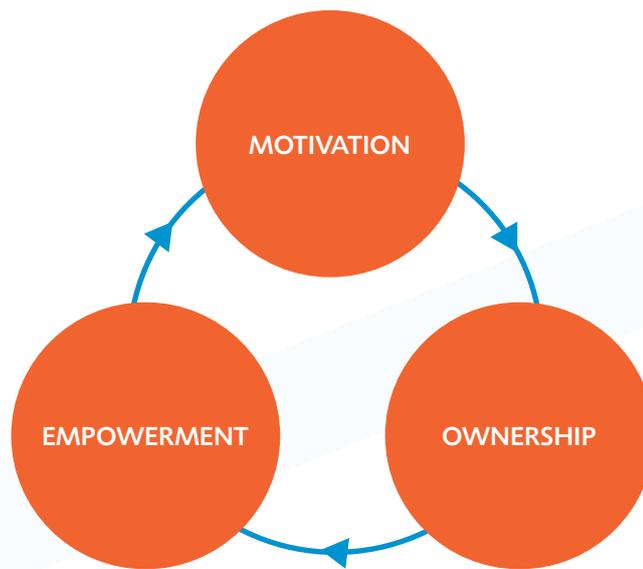
## **Ownership, or “Whose knowledge?”**

A learning process should always involve a transfer of ownership of knowledge. When organising or running science in society activities, one should always ensure that people leave the activity feeling that a certain piece of knowledge has become their own knowledge (as opposed to having the perception that someone else has it and they are allowed to be spectators). The achievement of ownership starts by respecting children’s agendas, but also by recognising that the process of gaining ownership might follow pathways that cannot be controlled by the institution.

### Empowerment, or “What would I do with the knowledge?”

Finally, motivation and ownership should lead to the possibility of choosing what the knowledge is useful for, that is, empowerment. In the words of Yuriy Castelfranchi, people do not accept or reject scientific and technological innovations: they demand them, hacking them to serve purposes that might strongly differ from those for which the knowledge was originally produced.

And to close the circle, this empowerment allows the relevance of the scientific knowledge to be defined in personal terms, thus helping relocate the motivational factors within the learner rather than in the knowledge provider.



The 3 cornerstones of the listening and empowering approach



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# A TOOLKIT FOR 'LISTENING AND EMPOWERING' TRAININGS AND WORKSHOPS



# A TOOLKIT FOR 'LISTENING AND EMPOWERING' TRAININGS AND WORKSHOPS

The toolkit for 'listening and empowering' training and workshop is both a guide for trainers and a self-assessment tool. It is composed of seven different modules targeting scientists engaged or willing to engage in science in society activities, organisers and facilitators/explainers. Each module is designed to be independent from the other. Each module includes: key messages, a training scheme, workshops, examples and resources.

We based our work on different training, pilots workshops and case studies of 7 institutions from science festival to children universities:

- **Paris-Montagne ([www.paris-montagne.org](http://www.paris-montagne.org)), France**

Paris Montagne is a non-profit organisation whose primary goal is to make the world of science and research more accessible to young people from underprivileged areas. Paris Montagne aims to promote the core values of scientific research, dialogue, rationality, mutual understanding and progress and by promoting these values to raise public awareness of their importance in fostering a vibrant democracy.

- **Kinderbüro Universität Wien ([www.kinderuni.at](http://www.kinderuni.at)), Austria**

Kinderbüro Universität Wien is a non-profit company owned by the University of Vienna, which is legally independent and totally project based. They operate in an academic surrounding on the interface between universities, science, arts and humanities and society, organising in particular a children university.

- **ZOOM Children's Museum ([www.kindermuseum.at](http://www.kindermuseum.at)), Austria**

ZOOM Children's Museum is Austria's first museum for children. ZOOM is an independent institution, unaffiliated to other museums in terms of its structure or thematic focus. ZOOM is more oriented towards the arts than many other children's museums, and has become a centre of interaction between children and artists.

- **SISSA Medialab ([medialab.sissa.it](http://medialab.sissa.it)), Italy**

SISSA Medialab is a wholly owned subsidiary of SISSA University (International School for Advanced Studies). SISSA Medialab develops innovative projects for science communication inside the scientific community and towards the general public. SISSA Medialab works with science museums and science centres, by providing consultancy in exhibitions and programme development.

- **Tübingen Children’s University ([www.uni-tuebingen.de/aktuelles/kinder-uni.html](http://www.uni-tuebingen.de/aktuelles/kinder-uni.html)), Germany**

The Tübingen Children’s University is a project of the University of Tübingen in cooperation with a local newspaper “Schwäbisches Tagblatt Tübingen”. It offers lectures, seminars and workshops by professors at the University of Tübingen for children between the ages of 7 and 12 to allow the children to have some direct experience of scientific work.

- **University of Liverpool ([www.liv.ac.uk/educational-opportunities](http://www.liv.ac.uk/educational-opportunities)), United Kingdom**

The International Centre for Excellence in Educational Opportunities was founded to provide a focus for global thinking around the changing role of the higher education sector in the social inclusion agenda. The Centre’s work has been developed from over a decade of innovative widening participation activities. They work with potential students across a wide age range, from young people in primary schools to adults returning to education.

- **Junge Uni Innsbruck ([www.uibk.ac.at/jungeuni](http://www.uibk.ac.at/jungeuni)), Austria**

The “Junge Uni Innsbruck – Science, Technology and Humanities for children and young people” is an initiative of the University of Innsbruck with the goal of raising the interest and the motivation of children and young people between 6 and 18 years in science and technology, and to develop science communication activities.

### WHY IS IT INTERESTING FOR ME?

#### I AM A SCIENTIST

#### I AM AN EXPLAINER

#### I AM AN ORGANISER

#### I WILL FIND TOOLS TO:

Prepare a presentation for children

MODULES 1 & 6

Self-evaluate participation and improve children participation

MODULES 3, 4 & 7

Achieve a better level of interaction with children

MODULES 1, 3, 6 & 8

Build a partnership with children and young people and include them in the governance

MODULES 2 & 7

Bridge the gap between my institution and children

MODULES 2, 3, 4 & 7

Take into account children expectations and let them define why science is relevant

MODULES 1 & 3

HEAR WHAT YOUR PAIRS HAVE TO SAY ON THE LISTENING AND EMPOWERING APPROACH:

“The dialogue should be open-minded and at an eye to eye level. It gives you new and unexpected perspectives. You can trust children.”

Silvia Prock, Junge Uni Innsbruck  
(Organiser)

“It’s only by getting direct feedback, listening to what they are saying, that you make sure that the project you are doing is the best it possibly can.”

Andrew Abrahamson,  
University of Liverpool (Facilitator)

“When you think about listening you have to be aware of your own expectations and the expectations of children. Both are important!”

Elisabeth Menasse and Christiane Thenius Zoom  
Children Museum (Organisers)

“[Dialogue] makes us think, especially about what we do. It's something that we need.”

Pierre-Yves Musso, ESPCI  
ParisTech (Scientist)

For more testimonies, have a look at these videos on You tube [bit.ly/videos-listening-and-empowering](https://bit.ly/videos-listening-and-empowering)

# LIST OF TRAINING AND WORKSHOP MODULES

EACH MODULE IS INDEPENDANT AND CAN BE USED ALONE OR COMBINED WITH ANOTHER.

**Module 1: When scientists meet children.**

How to prepare interactions between children and scientist

**Module 2: From engagement to governance.**

How to include/embed children in governance

**Module 3: Evaluating participation.**

How to develop an evaluation framework that includes engagement, empowerment and participation as key criteria

**Module 4: Creativity based science and society activities.**

How to build an empowered relationship towards creative scientific thought

**Module 5: Let them have their say.**

How to develop a consultation workshop

**Module 6: Guidelines for scientists giving speeches to large audiences of children**

**Module 7: Play your rights.**

How to engage in a dialogue with children through science and society activities



# MODULE 1: WHEN SCIENTISTS MEET CHILDREN



# WHEN SCIENTISTS MEET CHILDREN

## HOW TO PREPARE INTERACTIONS BETWEEN SCIENTISTS AND CHILDREN

### INTRODUCTION TO THE MODULE

Scientists engaged in science dissemination to a non-expert audience know that it can be a wonderful experience. But they also know that it can be tricky and difficult or, worse, can contribute to widening the gap between scientists and the public, and more generally between science and society. Science communication is not a matter of translating a complex message into a simpler one that can be understood by non-experts. It is a matter of recreating a meaning for the scientific knowledge in a context different from the one in which it was produced. It is about making science meaningful. This aspect is particularly delicate and important when the audience are children or young adults. Understanding what is the meaning of science for them and what meaning they want to give to science is not trivial, and requires skills in listening and dialogue, a willingness to accept constructive criticism, a capacity to analyse the motivations and expectations of both the scientists and the children participating in the activity, etc. Depending on the quality of the interaction, science can be perceived by children and young adults as an empowering tool that they can use to shape their future, or as an external force to which they have no access and that reinforces their exclusion from key decisions about the future.

### OBJECTIVES

To prepare scientists for a better level of interaction with children

### TARGET OF THE TRAINING

Science researchers, PhD students and university professors

Science communication practitioners

Science explainers

## SEQUENCE 1: THE CHALLENGE OF LANGUAGE

Language is a tool that can empower young people or, sadly quite frequently, can disempower them, creating distance, rejecting the dialogue and the sense of belonging.

To introduce the concept of jargon, we suggest you try out the following activity as an ice-breaker.

### TRAINING ACTIVITY: Identify jargon

**Objective:** to understand that words have different meanings depending on the context

**Time:** 8 min

**Instructions:**

- 1. Pair up with a participant
- 2. Ask him/her to present him/herself
- 3. Identify in his/her discourse one or two elements of language specific to his field or the word most used when he/she presents him/herself that might have a different meaning for the person speaking
- 4. Introduce your partner to the group and his/her specific word

**Facilitator role:**

Give the instructions

Listen to each presentation and try to identify a word that could be jargon, interpreted in different ways in different contexts.



## SEQUENCE 2: CHILDREN'S PERCEPTION OF SCIENCE

The first step in listening and giving a voice to children and young people, is to recognise that they have a personal agenda.

The next activity is designed to raise the issue of the agendas of children and scientists, a clue in the complex interaction between scientists and children.

### TRAINING TOOL: Agenda

**Time:** 16 minutes

**Material:** A set of 2 different coloured cards, a board

For an easier understanding of the workshop we will use yellow cards and green cards.

Instructions:

- 1. On yellow cards, participants write down at least 5 arguments for why they engage in science activities for young people (one per card) 4 min
- 2. On green cards, they note what they think are children's motivations for participating in science in society activities 4 min
- 3. The facilitator collects each group's set of cards and distributes them to another group
- 4. Participants read the cards
- 5. They sort both set of cards separately from the most important to the least important. They have to decide on the criteria with which they sort the cards.
- In order to prioritise, they have to discuss the issue and come to an agreement and a consensus within the group.

**Facilitator's role:** The facilitator will underline that children's agendas are different and that sometimes we have hidden agendas.

### Examples of results priorities

Scientists	Children
Passing on knowledge	Action
Challenge to your field "Naive Questions"	Chance to get answers
Revealing possible educational pathways	Alternative to school ("Getting out of school")
Recruitment	Meeting like-minded people

**Tips:** You can also do this activity with children! More information? See A. Bou-Vinals and S. Prock (2013), "Children's involvement in science communication", JCOM 12(03): C05.

Scientists	Children
Open doors to new questions	They have to come!!!
To show them that learning makes them happy	Curiosity
To show the importance of education	Come and touch science
Children are the future -> attract them to science	Be a leading player in science for a day
Scientific literacy gives them the opportunity to make their own decisions	To get more reliable information about special topics

## FOCUS ON

# Discussion games

Discussion games are playful activities with rules and set time-limits, often using cards.

They have many objectives:

- People clarify their own opinions
- People discover other opinions
- People learn how to present their opinions
- People experience a model of democratic discussion
- People learn something from the game materials and from the other participants
- People become more interested in the topic
- People develop an appetite for new knowledge

### **Discussion games aims:**

- To help people understand why they think what they think, and why other people think differently
- To provide a tool to make informed decisions
- To provide pedagogical support for science communication/education

See the discussion games manifesto (FUND project, P. Rodari, M. Merzagora, A. Bandelli)

## SEQUENCE 3: WHEN CHILDREN MEET SCIENTISTS

Adults are often scared of children, especially when they are supposed to embody knowledge or an institutional authority. A training phase is useful to overcome this fear, allowing them not to feel threatened by children's questions.

### TRAINING TOOL: Wall of fears

**Time:** 25 minutes

**Material:** cards, board

#### Instructions:

- 1. Ask each participant to dig into their memories and think of specific and personal experiences that have scared them in their interactions with children, then to write down at least 3 on cards (1 per card).
  - 2. Pin all the fears on a board.
  - 3. Let the participants read all of them
  - 4. Discuss together how to overcome them, benefiting from everyone's experience
- Facilitator's role: The facilitator will encourage the participants to find their own solution based on each other's experience.



#### Examples of results

- Somebody gets hurt
- Depreciation of parents /social environment (crushing of accomplishments)
- Tools get lost
- I don't get their interest
- I fear the children get bored by attempts to explain /interact
- That a child shows their complete lack of interest in my topic – they are not listening to me at all...
- Psychopathological kids – ADS, violent behaviour
- Somebody gets lost
- No time for a short break during a 4-hour activity (exacerbated by not having enough helpers) – I am not scared of the kids themselves!
- I don't know how to react if children are FREAKING OUT
- I'm scared of teachers who choose a topic that is not interesting for the children at this age e.g. soil and its insects for 16-year old pupils.
- I have no answer to their questions
- I fear the kids feel underestimated or get overwhelmed, because I have chosen the wrong level of communication
- When the children are not gifted in understanding the topic, and a feeling of lack arises.
- If I do not understand the topic anymore, because a child was asking too much.
- Children trying to compete with what they've learned (child universities, etc.) with other kids
- When I lose communication, I cannot find special words for children -> lose contact
- Not scared of kids but of their accompanying adults who won't let them experience the hands on
- Attitude towards inequality of people (abuse of knowledge & science) "proving" differences between people, genders, races...

**Resources:**

If you need to know more about the public perception of science: what do young people think about science? Who becomes a scientist? What do they see in science as a career? What are the key ages at which young people reframe their perception of science?

Kevin D. Finson, *Drawing a Scientist: What We Do and Do Not Know After Fifty Years of Drawings*, *School Science and Mathematics*, Volume 102, Issue 7, pages 335–345, Birmingham (Alabama), November 2002.  
Camilla Schreiner & Svein Sjøberg, "Science education and youth's identity construction - two incompatible projects?" In D. Corrigan, Dillon, J. & Gunstone, R. (Eds.), *The Re-emergence of Values in the Science Curriculum*, Rotterdam, Sense Publishers, 2007.



# MODULE 2: FROM ENGAGEMENT TO GOVERNANCE



# FROM ENGAGEMENT TO GOVERNANCE

## HOW TO REFLECT AND DESIGN THE INCLUSION OF THE CHILDREN IN THE GOVERNANCE OF INSTITUTIONS

### INTRODUCTION TO THE MODULE

Educators, museum explainers, teachers... “listen to” children all the time; depending on the limitations imposed by the situation and the adults’ capacity to “listen”, the children will be more or less enabled to express themselves freely and to participate more or less actively in the activity. Children’s opinions and feelings are also often taken into account to design more effective activities, to create an atmosphere in which they feel more comfortable or to plan new events and activities.

Quite a different matter is, however, to include children in the actual governance of the project or even the institutions, i.e. by organising a children’s committee, council, assembly or alike that will contribute to decisions made regarding institutional living. If we achieve this, which form of governance is more effective and fair to the children? What are the limits, the challenges and the opportunities that can be used to include children in organisational governance? How much does the age of the children’s group considered for the governance determine the feasibility and the limits of the decision-making?

This module is an example of how to reflect upon these questions, with the aim of finding solutions that fit the organisation’s mission, nature, structure and history. It is based on the course that was held on 22nd and 23rd May 2013 by Sissa Medialab entitled “Listening to the children: from knowledge to best practice”, given to the educators of the Ricreatori (children centres) of the Municipality of Trieste, 13 recreation centres that gather hundreds of children and teenagers every day for free time play, support for school homework and other after-school activities.

### OBJECTIVES

To facilitate the reflections of the educators of an institution regarding listening and the planning of the involvement of children in the governance of their institution.

### TARGET OF THE TRAINING

Explainers  
Educators

## SEQUENCE 1: THEORETICAL FRAMEWORK AND BEST PRACTICES

### TRAINING ACTIVITY: The empowerment diagram

**Objective:** to present "listening to children" not only as a great opportunity to change, exploiting children's creativity, intelligence and points of view, but also as an obligation.

**Time:** 10 min

**Instructions:**

- Open with the reading and commentary of the United Nations convention on the right of the child, where article 12 states that we "shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child"

### UN CONVENTION ON THE RIGHTS OF THE CHILD

**Article 12**

1. States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child.
2. For this purpose, the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child, either directly, or through a representative or an appropriate body, in a manner consistent with the procedural rules of national law.

**Article 13**

1. The child shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of the child's choice [...]

- You can continue with a general introduction to the methods of active listening and empowerment followed by a presentation of the Empowerment Diagram (next page). This diagram is a way of measuring the actual level of children's participation in activities/projects, as well as providing a way of reflecting on how to move on towards a higher form of participation. Make your own "My activity is here" chip and place it on the diagram.



Keep in mind that effective participation is:

- Transparent and informative
- Voluntary
- Respectful
- Relevant
- Child friendly
- Safe and risk sensitive
- Supported by training for adults
- Inclusive
- Accountable



You can engage children at different level:

- Situation analysis
- Strategic planning
- Programme development and design
- Implementation
- Monitoring and evaluation

Empowerment diagram based on the work of Gerison Lansdown,  
*Monitoring and evaluating children's participation*

The variables that can help moving on the empowering diagram are:

- **Location:** The location in which an activity is run is always full of symbolic meanings. The location could be familiar or unfamiliar. It could be in the community they come from, or far away. It could be an inclusive or non-inclusive space (that is, that makes young people ethnic, socio-economical, etc. differences relevant or irrelevant). It could be a school-like setting, or a leisure-like setting.
- **Setting:** The design and setting of the place where we do an activity is fundamental. For example, a lecture hall does not offer the same opportunities of dialogue as a circle of chairs. However, participatory setting can intimidate, and exclude shy kids.
- **Target:** Depending on the young people we are working with, some objectives can be obvious, or unreachable. Target groups can vary in terms of age, socio-economic background. But also for being a homogeneous or a heterogeneous group.
- **Expert:** Science in society activities often involve the participation of an expert, usually a research scientist. Sometimes they are engaging, but sometimes patronizing. Sometimes they motivate children to express themselves, but sometimes they close the dialogue by legitimizing only a certain vocabulary, not mastered by everyone. What are the attitude and posture of the experts that can promote empowering? When is the expert helpful, and when is he or she harmful to dialogue?
- **Topic:** The topic one is dealing with is important in science in society activities. Research with a high social impact is more likely to motivate young people to act as protagonists in the activity. Is empowerment limited to certain types of topics? Is it just a matter of “levels”?
- **Context:** Young people have a perception of the context in which the activity is run: is it a school programme? A competition? A visit? A family event? A science activity? An activity to promote social inclusion? How does the context in which the activity takes place influence the level of dialogue and empowering?
- **Time:** Dialogue and empowerment depend on how long and for how long young people are involved. In principle, more time implies a deeper relationship and more chances of empowerment. Is it always true? To what extent? And if time is limited, how can we make the best use of it?
- **Group size:** Personal interaction is a key to empowerment. Depending on the context, the ideal size of a group can be very different. Increasing the size of a group can at first improve the group dynamic, and then disrupt it and disempower young people.

## SEQUENCE 2: PREPARE INSTITUTIONAL CHANGES

The second sequence consist in a practical workshop, in which participants are directly involved in reflecting on challenges and opportunities of the appointment of a children's assembly.

### TRAINING ACTIVITY: Planning children's involvement in organisational governance

**Objective:** to determine what kind of children's involvement in the governance you want or is adapted to your institution.

**Time:** 2h

**Instructions:**

- 30' - Participants are split into small groups (4-5 people); they discuss the question: "Assembly, yes or no? Why yes or why not? If yes, with what objectives?" The groups is invited to limit the discussion to these questions in order to avoid the debate getting stuck on practical issues such as where, when, how many children, etc. – It is clearly expressed that the choice of objectives would also determine the form of governance.
- 30' - Groups reported back and discussed the results collectively.
- 30' - Participants are split once again into small groups; they have to discuss the question: "What form should the children's assembly take? What are the possible problems and what are the possible solutions?"
- 30' - Groups report back and discussed the results all together.

Wrap up of the discussion on a board.

### Example of result, a training led in Trieste:

Of the six groups in which participants were divided, five groups were in favour of an assembly of all children (at least all those who want to participate) while one group considered a restricted assembly to be more effective.

All participants believed that participation in an assembly meeting was in itself a positive, democratic experience that allowed everybody to understand and express different opinions and feelings, and moreover it fostered a sense of belonging to a community. However, the assembly should not, by any means, be merely "decorative". In order to be fair to the children and not to produce frustration and disenchantment (a boomerang effect of false democracy), the meetings should have a real impact. This means that children must actually be listened to, someone must register their requests, take them into account and try to implement them or, if this is not possible, explain why not to the assembly. The role of the children's assembly in promoting the awareness of the part children may play in society –among parents, teachers, administration officers and citizens in general – was also discussed and finally highlighted.

The discussion on goals and methods can be summarised as follows:

#### Objectives of the children assembly

##### 1 - Specific

- To collect suggestions and criticisms
- To discover new problems and new opportunities

## 2 - General

- To promote the recognition of the role of children in society (among parents, teachers and adults in general)
- To take control of the recreation centre (children and educators together)

This final objective needs some explanation. In recent years, the Trieste children centres have increasingly received requests to support children with difficulties in formal learning, to organise after-school workshops to help with school work. This process, educators have said, has moved the focus of the centres' mission from responding to children's needs and desires, to meeting parents' and teachers' expectations. A children's assembly, educators felt, might correct this distortion, taking the children's centres back to their original mission: to support the development of children, offering them a setting where they can express their freewill.

Modalities for the implementation of the Assembly (some are alternative)

- Micro-assemblies within the work already structured (e.g. an assembly of children involved in sporting activities; one for those that attend music courses etc.)
- Micro-assemblies divided by age
- General Assembly with consultative character at least, with all present (adults and children), where a head is worth a vote
- Set aside a day off (regularly) for the Assembly
- Core Group within the Ricreatorio

The participants made other general considerations that should also be taken into account for the actual implementation of the Assembly. First of all, children need to feel motivated to participate and must do so on a voluntary basis. This motivation is closely linked to the real impact that their work can have on the centres' life, i.e. the feeling they have to really make a difference.

A challenge arises from the fact that children's centres are attended by children from 5-6 years old up to 14 and beyond. These are very different ages, with very diverse needs and abilities; it will not be easy to integrate all voices in a single assembly. However, educators commented, this is also a source of richness, which should somehow be protected.

The fact that the assembly will be either open to all on a voluntary basis i.e. be restricted to a representative group, raises the issue of what representation means. If it is on a voluntary basis, and the children decide to participate because they feel like it, that means the assembly is not representative in the sense of elective representation, but it is participatory, meaning it is a way for everybody to personally participate in the running of the institutions.

Finally, the issue of adults, including educators and parents, was discussed. Should they or should they not be there? And if so, what role can they play without becoming an inhibiting factor in the freedom of the children? This is also a crucial issue to be tackled with work on progress reflective practice.

## FOCUS ON

# Children's advisory boards

Several organisations and initiatives have children and teenagers in their official advisory boards.

It is considered very useful, if not essential, when it comes to designing the activities whilst following and respecting children's needs. However, several case studies show that it is not a good idea to mix children and pedagogues or other adult professionals on the same boards: they are both important, but should sit on separate advisory boards.

They all point to the need that such advisory boards should have a narrow agenda and very clear objectives. Also, the limits of advisory boards should be made clear. Children often have the feelings that whatever they say will become real. As this is not possible, it results in frustration, thus contradicting the very essence of empowerment.

**“We learned that the advisory board should have a very clear understanding of areas in which they can or can't offer advice”.**

Caroline Iber, KinderUniWien

Listen to the full testimony of Karoline Iber here: [bit.ly/video-Karoline-Iber-listening](https://bit.ly/video-Karoline-Iber-listening)





# MODULE 3: EVALUATING PARTICIPATION



# EVALUATING PARTICIPATION

**HOW TO ANALYSE OUR SCIENCE COMMUNICATION PRACTICES IN ORDER TO IDENTIFY OBSTACLES AND OPPORTUNITIES TO ALLOW CHILDREN TO EXPRESS THEMSELVES, AND TO ENSURE THAT THEIR VOICE HAS AN IMPACT ON SCIENTIFIC OR HIGHER EDUCATION INSTITUTIONS**

## INTRODUCTION TO THE MODULE

This module aims to sensitise explainers, facilitators, guides, and all “floor staff” in direct contact with the public, about the importance, the opportunities and obstacles that can arise when listening to children. It is based on an auto-analysis of the experience that they offer to the public, aimed at identifying the opportunities that children have to express themselves.

The theoretical background is a model developed by Laura Lundy from the University of Belfast in the context of children’s rights.

Note: The module can be combined with Sequence 2 of the module “When scientists meet children”. The module is structured for a group of explainers working in the same institutions or on the same activity, thus knowing each other and sharing a common knowledge of the main features of the activity. If the module is used for training a group of explainers working in different contexts, some adaptations may be necessary. These are outlined at the end of the module.

## OBJECTIVES

To ensure that the principles of article 12 of the UN convention on the right of the child are taken into account in science in society activities

To provide a practical, reflexive tool to evaluate science in society activities in terms of listening and empowering

## TARGET OF THE TRAINING

Facilitators in direct contact with the public in science in society activities.

## SEQUENCE 1: INTRODUCTION TO THE CONTEXT

### TRAINING ACTIVITY: Why listen to?

**Objective:** To highlight the need of listening to young people

To let participants reflect on where their convictions on children's motivation come from.

**Time:** 30 min

**Instructions:**

- Participants are asked to work individually and write on a card what motivates them in their professional activity with children. Their thoughts are hung on a wall.
- After quickly going through them to identify common trends, the facilitator asks a second question: "what motivates children to participate in your activities?" A collective brainstorming leads to a series of thoughts written on a board, next to the participants' original thoughts. The facilitator can write these thoughts. However, if a group of more than about 15 people is involved, the same exercise can be done in groups of 4-5 people.
- The facilitator then asks a third question: "how do you know that this is indeed what motivates them?". A collective discussion is launched. With this question, the facilitator aims to induce reflection on the occasions when the explainers will have to listen to children to understand their feelings, to gather their feedback, etc. Several dimensions are expected to emerge, from more generalised references to child psychology (for example, on the age-dependent ability of children to express their true thinking, or to adhere to a set of criteria defined by the school setting), to very practical ones, such as physical space or the time available. The facilitator should be very careful to ensure the balance between these dimensions, reminding the participants, if necessary, to refer as much as possible to their actual experience "on the field".

### TRAINING ACTIVITY: The UN Convention

**Objective:** To highlight the universal nature of the issue of listening to children

**Time:** 15 min

**Instructions:**

- The facilitators introduce the importance of listening to children by reading article 12 of the convention on the right of the child: "States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child." Thus clarifying that taking children's views into account is not an option, but a formal engagement. They will state that, by the end of the activity, it should become clear that contemplating children's views is also a great opportunity to improve the quality of our work.

## SEQUENCE 2: SELF-ANALYSIS

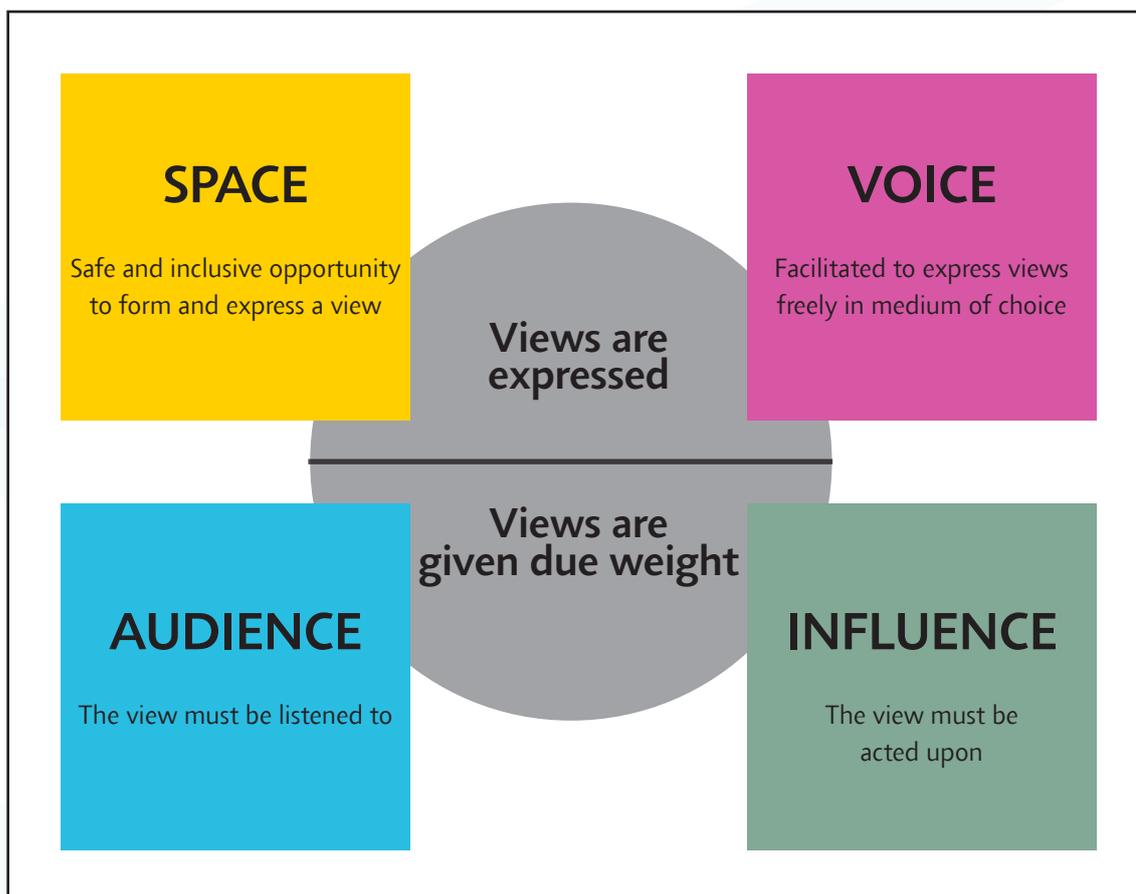
### TRAINING ACTIVITY: How to promote listening?

**Objective:** To reflect on one's own practice in terms of the opportunities of children to be listened to

**Time:** 1h

**Instructions:**

- Participants are divided in groups of 4-6 people. For this activity, it is better if the group are quite homogeneous, that is, they are preferably working on the same activities.
- A set of previously prepared A3 sheets is distributed, and the "Lundy model" is introduced by the facilitator. This is a model developed by Irish researcher Laura Lundy within the framework of children's rights, aimed at ensuring the implementation of article 12. In this model, article 12 is divided in its two sub-items – the right of the child to express his/her views, and the right that his or her views are given due weight – and four dimensions determining their possible implementation in practice are highlighted: space, voice, audience and influence. Groups will work around the A3 paper, used as a guideline



Laura Lundy, 2011

- Once they have read and understood the scheme, groups are asked to choose a specific activity (an animation, a visit to an exhibition, a workshop, etc.). At first, they will tell each other, in narrative form, about the activity they are analysing. They will then analyse it in terms of the four criteria identified in the Lundy's model. In other words, they should identify, in very concrete terms, if their activities allow a Voice, a Space, an Audience and an Influence for children to express their views.
- As a final step, facilitators ask the groups to identify obstacles and enablers that allow each of the 4 criteria to be fulfilled, and write them on purposely prepared cards. As an example, a typical obstacle for the Voice dimension could be the size of the groups: groups that are too large may be intimidating for some children, or might reproduce role play in groups from the same class ("the clown", "the top of the class" will stick to their roles, rather than seeking to express their ideas); a typical enabler for the "audience" dimension could be the presence at some point of the activity of the director of the institution, in a listening posture, giving the commitment of the institution visibility, thus giving value to children's thought.
- The activity is concluded with a common discussion around a subset of the obstacles and enablers identified in the previous step, with the aim of exchanging ideas and best practices on how to overcome specific obstacles and/or potential specific enablers. In this phase, we believe that the facilitator should not provide answers: in fact, the main outcome of the activity should be to promote self-reflection among the institution staff on listening and empowering issues, and suggest that once they have identified the problem, they can collectively find good solutions. In fact, it is highly probable that the solutions found by the participants – who have a much deeper understanding of the specific situations, the context, and their publics – are even better than those provided by even an experienced facilitator.
- Wrap up: a general discussion concludes the activity.

## HOW TO ADAPT TO NON-HOMOGENEOUS GROUPS?

In our tests of this activity, we faced some difficulties when applying it to participants with different experiences or coming from different institutions. In fact, the activity is mostly based on self-reflection on an activity known by all participants. When applied to a different activity, too much time and focus appear to be devoted to the description and understanding of the activity itself, rather than on its relationship with listening to young people. One obvious solution would be to build homogeneous sub-groups. When this is not possible, a second option would be to identify a common experience shared by the participants at the beginning of the activity (for example, they might all have participated in the same museum visit or a previous workshop), and use this as the reference activity. Whenever even this is not possible, in case of a group of experienced professionals, we suggest running the module as a meta-activity. Finally, we would suggest for this module not to be run with a non-homogenous group of newcomers.

### Tips

See Module *From Engagement to governance*, the list of variables that enable listening.

### Ressources

The model of Laura Lundy is described in some details in "JCOM" (JCOM 12(03): C02) and in full details in E. Welty and L. Lundy (2013), "A children's rights-based approach to involving children in decision making", JCOM 12(03): C02.).



# MODULE 4: CREATIVITY-BASED SCIENCE IN SOCIETY ACTIVITIES



# CREATIVITY-BASED SCIENCE IN SOCIETY ACTIVITIES

## HOW TO BUILD AN EMPOWERED RELATIONSHIP WITH SCIENCE THROUGH CREATIVITY

### INTRODUCTION TO THE MODULE

At the heart of a public communication of science there is not only a process of simplification of knowledge to a more accessible language, but mainly the capacity of providing a new meaning to a piece of knowledge in a context that is different from the one where it was originally produced. The process of science communication inevitably redefines the relevance of scientific knowledge, which needs to resonate with expectations and needs of the audience.

A key question in the context of listening and empowering is then: who governs the process of redefinition of the relevance of scientific knowledge in the public sphere? Science in society activities involving face-to-face interactions with the public, provide a great opportunity for the public itself to participate in this process. In particular, when dealing with family audiences or with teenagers, creativity can become an extremely valuable tool to empower the public in defining the relevance of the scientific knowledge they encounter. This audience-led agenda-setting approach has an additional, fundamental benefit: it lowers the impact of implicit exclusion mechanisms. In fact, social exclusion mechanisms do not operate only at the time of accessing knowledge (such as selecting non-visitors to science centres and museums, or non-readers of science magazines), but also in the way the public frame and use knowledge in their lives. Therefore, even when a science communication activity reaches the hard-to-involve public, it does not automatically increase their inclusion (or even their freedom of choice to be included or not). Unless the activity builds an ownership of the knowledge presented, it might very well reinforce social exclusion.

In order to be inclusive, the construction of this ownership needs to be governed by the public.

Creativity-based science communication can offer a valuable strategy in this sense. The development of personally meaningful projects can become a starting point to develop a desire for learning, by interpreting and viewing knowledge as desirable: knowledge that can help us make sense of the world and maybe bring it as close as possible to the one we would like to live in.

In the following, we develop some of the key characteristics that can make creativity an instrument for listening and empowering young people in science in society activities.

### OBJECTIVES

Develop creativity-based activities to foster the sense of ownership for scientific knowledge

### TARGET OF THE TRAINING

Organisers and facilitators

## A PERSONALLY MEANINGFUL PROJECT

In creativity-based science in society activities it is essential to design activities in which the driving element has a personal value for the learner. This element can be many different things: a story, an image, an artefact, etc. Its main role is to link scientific knowledge or the meeting with a scientist, to the world of the participant, according to the participant's own choices. The "personal meaning" can refer to aesthetical values (as in a drawing), but is not necessarily related to art. If this personal element is clearly set at the beginning and at the end of the activity, it can become a valuable reason to desire knowledge, and to build personal ownership.

## BUILD ON WHAT THE AUDIENCE KNOWS, RATHER THAN ON WHAT IT DOESN'T

It is also essential for participants to have the feeling that their knowledge and their interpretation of the world is highly valued. The starting point of the activities should therefore always be an exploration of the knowledge, the opinions and the values of the participants with respect to the science presented. In more general terms, the facilitator should devote time to ensure that each participant can build a link between their own personal life or imagination, and the science they will soon encounter.

## LOSING CONTROL IN THE CREATIVE PROCESS TO ENHANCE MOTIVATION FOR LEARNING

Creativity-based science in society activities are risky. In fact, particularly in the case of activities based on storytelling, the outcomes of the young participants can strongly deviate from the objectives of the organisers. Our suggestion is for organisers and facilitators to be brave enough to lose as much control as they can regarding the work of the participants. Whatever the choice, the level of independence of the participant needs to be clearly stated and agreed upon at the very beginning of the activity: he or she should know if s/he will be "corrected" during the process. When letting young participants express themselves freely, it is nevertheless very important for them to be aware of what is deviating from what science has actually achieved. That is, rather than "correcting" their work, facilitators should help participants self-criticise their own products in relation with the science to which they relate, while fully respecting them regarding their personal creative process.

## NO ONE IS INTERESTED IN ONLY ONE THING...

Creativity-based science in society activities allow different interests of young people to come together. If the activity is well designed, these different interests can nourish each other. In fact, "side effects" are very often welcome. So in film-making activities, some young participants might be interested in understanding the rules of scriptwriting, or the use of video editing software, but they will be very pleased to also meet a scientist and learn about, say, new insights into the functioning of the brain. Or, vice versa, some young participants might be attracted by the possibility of building a flying machine, while at the same time would appreciate building a nice-looking object. Informal spaces can gain in attractiveness if the final objective of the activity is not strictly set, but is a continuum within which each participant chooses where to place their own agenda.

## OPEN-ENDED LEARNING

It is somehow hard to accept how to organise a learning activity, and having almost no control on what the participants learn. In today's world, as observed by Exploratorium's Bob Semper "connectivity tools [...] and the new social opportunities for learning they provide, allow people the control to choose when and where and from whom they select their learning opportunities". Open-ended learning activities can work



alongside this deinstitutionalized educational landscape, rather than ignoring it or counteracting it. The fact that the audience can choose what to learn, almost inevitably enhances their motivation for learning, although not necessarily where the organisers of the activities or the facilitators expect it to occur. This provides in turn a great occasion for listening to the wishes of the children and teenagers, guaranteeing the development of a sense of ownership for the acquired knowledge, and therefore lowering socially established barriers in their relationship with knowledge.

It should however be made clear that open-ended approaches cannot be left to work alone, but can only complement traditional, more structured formal (school) or informal (science centres, leisure activities) educational activities.

## IN PRACTICES

We put this reflexion into the design of the workshop 'Tell your science tale'. This 2-day activity revolves around the making of a short fiction film, based on a protocol developed by movie director Michel Gondry, to motivate the encounters between teenagers and researchers follows 4 steps.

**STEP 1: Brainstorm** to take into account previous knowledge and interest but also to liberate ideas, dreams, questions that they have on a scientific topic

**STEP 2: Give food for thoughts and creativity** by visiting a research lab and meet scientists

**STEP 3: Learn the basics of storytelling** basics of scenario writing

**STEP 4: Create** a fiction film using smartphones and tablets

We balance freedom and constraints in their creative work. The fact that they begin the activities with open questioning and have a final creative task such as developing a fictional story and shooting a film, has a very strong "push and pull" effect on the type of interaction that teenagers have with scientists. It allows them to combine personal needs and curiosity with scientific knowledge coming from the scientists. This approach confirms that access to science as a means of nourish a personal and creative project (the story) can provide an extraordinary motivation for learning, and a great attention to the social implications of science. Moreover, teenagers appreciate the possibility of combining their true curiosity for science with their interest in film-making, storytelling and new technologies, making participation to the workshop a particularly unexpected, enriching and enjoyable moment. We value their storytelling through teamwork and organising ideas.

Another example of this approach: The Tinkering Studio activities, developed at the Exploratorium in San Francisco and at the MIT PIE (Playful and Inventive Exploration) Institute, combine socio-constructivist pedagogy with the maker culture, leading to what is now called constructionism. By offering platforms and materials for making and learning, "The Tinkering Studio supports the construction of knowledge within the context of building personally meaningful artefacts, such as marble machines or light paintings. We design opportunities for people to "think with their hands" in order to construct meaning and understanding". Learn more at [tinkering.exploratorium.edu](http://tinkering.exploratorium.edu).





# MODULE 5: LET THEM HAVE THEIR SAY



# LET THEM HAVE THEIR SAY

## HOW TO ORGANISE A CONSULTATION WORKSHOP WITH CHILDREN

### INTRODUCTION TO THE MODULE

We developed a series of workshops for young people to reflect on education and make recommendations on different aspects of Science in Society and access to knowledge. 'What We Recommend' was designed as a one-day workshop with a group of young people who had never previously worked together. The workshop set up a series of activities designed to help prepare the young people to identify their own thoughts and come up with their own recommendations.

Organising such a workshop is an invitation for young people to express their views. This activity will be useless (or worse, offensive) if the young people do not perceive that the adults are listening to them, with the genuine possibility of being influenced by their views.

If you want to learn more about What We Recommend: see the guidebook to organising your own WWR workshop.

### OBJECTIVES

Develop listening and empowering activities on consultation

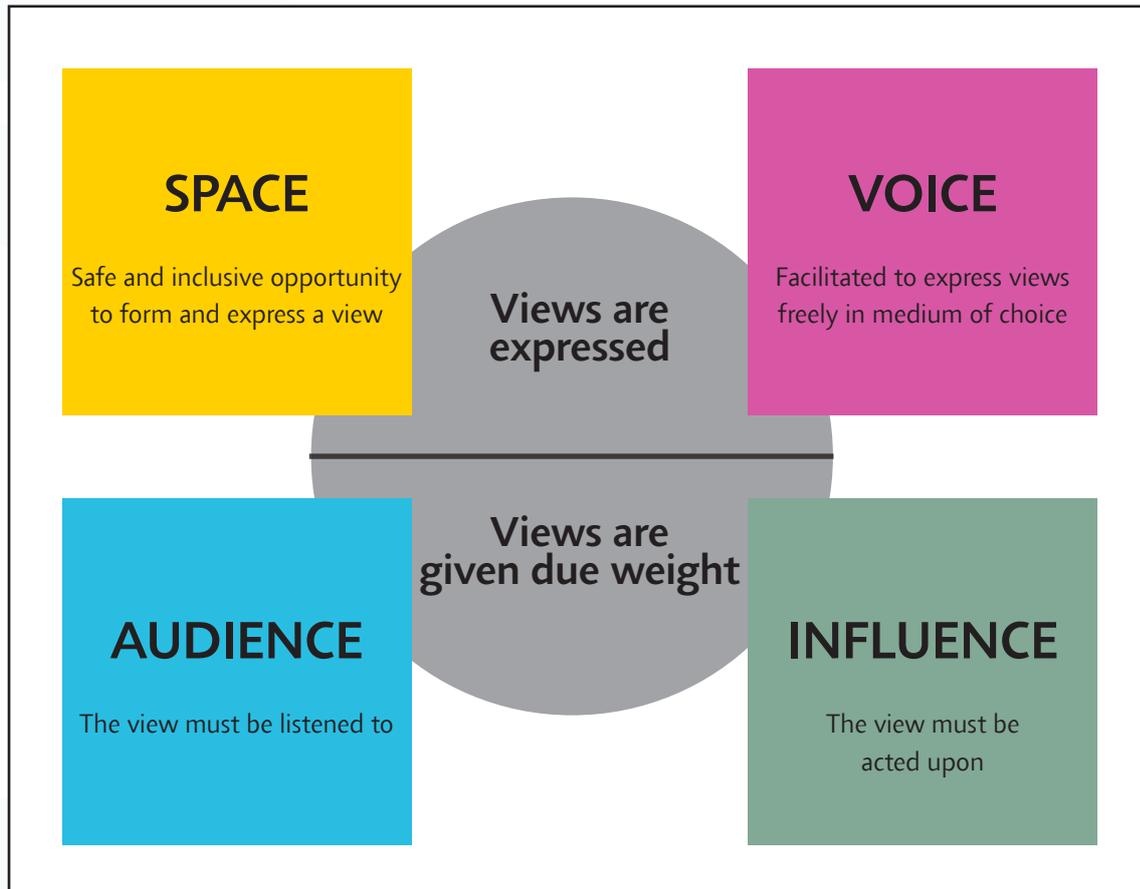
### TARGET OF THE TRAINING

Organisers and facilitators

### MAKING LISTENING A CENTRAL PART OF THE WORKSHOP

Making children aware of their own right to decide upon procedures will empower them, not only during the workshop but also in their daily life. Young people have to feel free to articulate what they want in the way they want. That is why an atmosphere of freedom is a necessary condition for dialogue.

When organising a consultation, you are creating a space in which young people can express their views. In this process, the most difficult part is providing an audience and an influence: listening is taking responsibility of doing.



The following figure illustrates the different aspects required in a listening process. (Laura Lundy, 2011)

The facilitator and any other adults present must ensure that they are not being tokenistic and are not just using the children for their own purposes, but are consulting them from a stance with a genuine interest in institutional change.

Calling on a neutral third party, who is neither the teacher nor the parent of the child, is a good option, as such a party is less likely to unintentionally influence the children's openness to the ideas under discussion or their personal expression of ideas.

### THE ROLE OF THE FACILITATOR

The facilitator is the guardian of the process of conversation and reflexion, made accessible through eye-level interaction and appropriate language. The facilitator is not an expert, but is there to guarantee the

smooth running of the workshop and the quality of the discussion, making sure that everybody is given the time and attention to express their opinion. The facilitator will also be there to recap and analyse what has been said, but not to teach, convince or judge. While resisting the temptation to answer all questions, the facilitator will encourage the young people to reflect back on the questions and their responses. The identification of the topic or questions to be explored with the children is the most important element of any public engagement activity. It should also relate to both their reality and the intended purpose of the activity being developed.

### THE CHOICE OF A TOPIC

The choice of topic should be entered into only on the basis of a genuine desire to listen to the opinions and perspectives of children. This intention to listen to the viewpoint of young people also needs to be adaptable to the decisions being made by the organisation itself. There is no point in asking for recommendations that will never be considered by higher levels of the organisation.

### THE LIMITATIONS

On the other hand, young people need to understand the limitations of any action that you can deliver on. For example if you are asking young people to make recommendations about the development of an exhibition, a university children-focused activity or a specific service by a public authority, then they need to be clear as to how much responsibility for change you actually have. And yet, children should not be limited in the scale of their recommendations or thinking since the opportunity to 'think big' is an essential first step. This can be followed up with discussions about what is practical, with due care taken to ensure that young people are given the opportunity to genuinely reflect on why options are realistic or unrealistic.

### SEVEN STEPS THAT CAN BE CARRIED OUT

**STEP 1:** To inform the participants of the process and of how the results of your consultation with them will be used.

**STEP 2:** To get to know each other in order to make everyone less self-conscious and more open to interaction, by using warm-up and energiser activities as a way to create a fertile atmosphere for expressing and sharing ideas.

**STEP 3:** To give young people control over the 'contract' underlying the workshop and to create a safe place where young people will feel their views and opinions are valued, by collectively setting and agreeing on the rules so that children know they are respected and empowered.

- Ask participants if they can explain what a contract is. (Contract: An agreement between two parties.)
- Let participants establish their own rules for the wellbeing of the workshop.
- Encourage participants to think about conditions that will help or hinder communication.
- Write down on a paperboard every rule they come up with.
- Always make sure that the contract is framed in positive rather than negative language, i.e., that it starts with 'we will...' rather than 'we will not ...'.

**STEP 4:** To make explicit expectation

There are also three important issues that must be considered and shared at the beginning of the workshop:

1. What do the participants expect from each other?

2. What do they expect from the adults sponsoring the workshop?
3. What do the adults expect from them?

**STEP 5:** To stimulate young people's thinking by engaging them in a mixture of group activities and individual activities, such as discussion games and the snowball process.

**STEP 6:** To help the young people choose the way they want to present their work, such as through stories, or short drama sequences, or some form of written expression.

**STEP 7:** To give closure by taking a chance for feedback and reflection on the workshop as a whole. Review how expectations have been met. Thank participants for their engagement. It's also a good time for evaluation.

This type of workshop needs focus and hard work from the young people so the first rule is to ensure that everyone is enjoying themselves!

MODULE 6:  
GUIDELINES FOR SCIENTISTS  
GIVING SPEECHES TO LARGE  
AUDIENCES OF CHILDREN



# GUIDELINES FOR SCIENTISTS GIVING SPEECHES TO LARGE AUDIENCES OF CHILDREN

## More than 100 participants

These Guidelines have been prepared during the Mentoring Associates Programme, SiS Catalyst, 2013-2014. Sissa Medialab (Italy) and Virginia Tech Kids University (USA).

### GENERAL ADVICE

If you decide to give a talk to an audience of children you have to prepare well in advance. It is very important to take into account the age of the children and to try to have an audience as homogeneous as possible. Groups of children that can be considered homogeneous for interests and behaviour are:

- 3-5 years old
- 6-9 years old
- 10-13 years old
- 14-16 years old
- 17-18 years old.

The presentation should be prepared taking into account their interests, abilities, desires, etc.: do not use standard presentations suitable for the general public!

In order to prepare a talk really effective for your target audience you should write down notes on what you would like to tell and, before starting the real preparation, you should meet a small group of children of the same age of the ones you want to address to, present your ideas and discuss with them about your talk:

- Is the theme you want to talk about interesting for them?
- What stories they like best?
- What concepts are difficult for them to understand? How can it be easier for them to understand?
- What words need to be explained?
- What questions do they ask?
- What would they like to know more about?
- Etc.

### ADVICE FOR THE PREPARATION OF THE TALK

- Introduce the subject in the first slide trying to involve the children with questions and making very clear what is the topic you will talk about;
- If some objects are relevant for your talk, bring and use them during the talk. You can also show small experiments or phenomena, but in that case you have to be sure that they are very visible for everybody;

- Present few examples (too many can be confusing);
- When speaking about the past, give a system of reference that children understand, mentioning something (objects, people, buildings, inventions) that children might know (not, for example, 20th century or 1300, but: the age of your grandparents, before America was discovered, etc.);
- When speaking about numbers, measures, distances, etc., make relevant comparisons with something the children might know: e.g. as many as the inhabitants of New York; smaller than a grain of sand, ...;
- If you wish to introduce technical words, select a limited number (two or three for the whole presentation) and whilst speaking write them in big letters (e.g. on a blackboard, on the screen), and define them clearly and with examples;
- Never forget about gender balance, and ethnic or diversity issues when interacting with the children or speaking. E.g. if it is the case give examples that include children of different gender and groups, never be offensive against a particular religious belief, never be patronizing toward particular communities, etc.

## STEP BY STEP ADVICE

### 1) Start – Introduction

Children often think that scientists are different people from all the others: especially gifted, absent-minded, solitary, dedicated only to work, etc. With this belief they assume that science is not their thing. Therefore it is very important that you present your self as a human being: name, origin, interests, emotions, collaborators and people you know, etc. Children appreciate a personal touch and anecdotes: e.g. why s/he decided to do research in that field? Why s/he likes it?

### 2) General tips on speaking

You should speak loudly, clearly and make pauses, especially to underline important concepts or words. You should always look at children faces to check if they are getting bored, or they like, or they are confused etc.

### 3) Storyboarding and Content

PPT must be prepared specifically for children. Don't use slides you already used for other presentations if you are not sure they are suitable for the age (complex diagrams, technical drawings) or, if you do, explain why they are interesting for you, what they show, what details they can look for and understand etc.

### 4) Issues on PPT (technical)

Contents must be visible also to people seating on the back of the room: big images, few writings (for example black on a white background). Use of images: possibly use only one image per slide, big and significant.

- a) Writing: as few words as possible. Do not write all the text you tell, but only the words you want people remember and notice.
- b) If you want to tell a story, do not put many images on the same slide (all the images together to tell the entire story), rather make a slideshow of the images (one per slide) and in the meantime tell the story.
- c) Short animations and videos can be very effective to explain important concepts, processes, and procedures. But not the technical ones you would use for your colleagues
- d) If images and videos are crucial, create the appropriate environment (dim the light).

### 5) Objects

It is very effective to select some objects relevant for the topic and have them with you on stage. When appropriate show the object so that all children can see and understand (also the children seating on the back): e.g. if you are talking about rocks, bring one with you and lift it up when describing it. You can use also simple and common objects: e.g. if you are talking about mobile phones, show yours. Slow down the time of the presentation when you show objects.

## 6) Direction

Time when speaker speaks and the time when children can ask questions must be clearly defined and organized. Children should be informed on this schedule and know what behaviour is expected from them at any time.

Leave at least three times for questions within the presentation.

During the time for Q/A you should go among the children and interact with them directly, moving to different areas of the theatre (left, right, back, front).

You can invite children on stage to perform some actions.

Prepare a happy end: read the children opinions, tell a story, say what you would like to have, your dream. Let them all together learn some difficult word, etc.

## 7) Participation

When preparing your talk, think how you can make children to participate more and not only listen.

For example you can use some kind of assessment tool (i-clicker) or ask children to lift their hands to express their opinions, wishes, etc. For example: ask the children to vote what they would like from the computer of the future among 5 options. Polling.

You can also ask the children to write on a piece of paper what they desire or think, you then collect the proposals and read some of them aloud at the end of the talk.

As you cannot make all children participate (as they are too many), use some criteria to select children who have the possibility to participate more actively and be transparent on them (for example: whose birthday is the day of the talk, who arrives from the farthest place, etc.)

When you select children think about a good balance of ages, gender, ethnicity, etc.

## 8) Evaluation

If the organizers do not provide it, prepare yourself some sort of evaluation: short questionnaires (what they like most; what they liked less; what they would have liked to know more about; etc.); post-its for their comments to write at the end and to collect; short interviews with a few of them at the exit; etc. Their comments will help you to prepare a better talk next time.





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# MODULE 7: PLAY YOUR RIGHTS



# PLAY YOUR RIGHTS

## HOW TO ENGAGE IN A DIALOGUE WITH CHILDREN THROUGH SCIENCE IN SOCIETY ACTIVITIES

### INTRODUCTION TO THE MODULE

The Play Your Rights toolkit is designed to promote children's participation as a fundamental right. Participation must be an imperative in all relationships established between children and adults or between children and institutions. Children's participation must be authentic and meaningful and adults and institutions must be prepared to take children's visions, dreams, hopes and concerns on board. An authentic and meaningful children's participation requires a radical shift in adult thinking and behaviour as well as a radical shift on the institutional level — from an exclusionary to an inclusionary approach to children and their capabilities.

Children's participation has an important role in science and education. As argued by Lacan no one can be educated, psychoanalysed or politicised, it is a subject's task. Paulo Freire signed in the same direction by saying that knowing is the task of subjects, not objects. And it is as subject and only as a subject that human beings can truly know. Therefore science and education should provide children with the experience to develop their talents and abilities to full potential, to gain confidence and self-esteem, to use their initiative and creativity, to gain life skills and take informed decisions and to understand. The right to education means the right to experience citizenship. Children must be perceived not as mere recipients of knowledge, what Freire names as Bankarian Education, when children are perceived as an empty bank account in which adults launch information.

Adults and institutions must develop their practice to take children as active players in the learning process. It is for this reason that the UN Convention on the Rights of the Child puts so much emphasis on the aims of education (article 28) and on an educational system that respects the child's human dignity. Perhaps the first feature of human dignity is freedom.

Despite children's participation being a right which all the United Nations members have signed and only 3 nations have not ratified, it remains the most violated right. Despite all the scientific evidence adults still rule the children's world without their participation.

The Play Your Rights toolkit is organized as a series of activities which can be applied as a whole or taken separately to foster attitudinal and institutional change in the relationship between children and adults.

## OBJECTIVES

- To help with the process of increasing the participation of children and young people in decision-making and policy-making
- To be a resource for organizations taking part in science in society activities
- To support organizations throughout consultations and participatory activities with children and young people in the area of access to Education and Science
- To help ensure consistency and quality in consultations and participatory activities, taking into account the diversity of groups
- To provide a summary of the different approaches and methods of participation in relation to policy consultations
- To be a comprehensive and accessible on going resource for policy consultation with children and young people

## TARGET OF THE TRAINING

- Policy makers and decision makers including the European Commission, local authorities and the European Parliament
- People working with children and young people in local authorities (e.g. in community education), schools, science museums and children's Universities and higher education institutions
- Children and young people involved in consultation processes
- Young people involved in carrying out consultations with their peer groups



## LIST OF THE 42 PLAY YOUR RIGHTS CARDS:

Card 1– Toolkit	Card 22 – Staging Children’s Right
Card 2 – Toolkit	Card 23 – Staging Children’s Right
Card 3 – SiS Catalyst	Card 24 – Cross and Circle
Card 4 – Indices	Card 25 – Write your name in the air
Card 5 – How to use the cards	Card 26 – Parts of the Body
Card 6 – Right to Take Part	Card 27 – Good Morning
Card 7 – Right to Take Part	Card 28 – The circle of knot
Card 8 – Ball and Circle	Card 29 – Two by three by Bradford
Card 9 – Twins	Card 30 – Person to person
Card 10 – I like you... because...	Card 31 – Collective Character – Adult and Child
Card 11 – Volleyball	Card 32 – The great game of power
Card 12 – Building a group contract	Card 33 – The imaginary journey
Card 13 – The adult must have in mind:	Card 34 – Explaining Forum Theatre - The handshake
Card 14 – Art 12	Card 35 – Complete the image
Card 15 – Art 13	Card 36 – Gallery of Statues
Card 16 – Art 14	Card 37 – Image of transition
Card 17 – Art 15	Card 38 – How many ‘A’s in a single ‘A’?
Card 18 – Art 16	Card 39 – Homage to Magritte
Card 19 – Reclaim The Rights!	Card 40 – Forum Theatre Session
Card 20 – Take your side	Card 41 – Collecting and Performing Child Stories
Card 21 – Staging Children’s Right	Card 42 – Bibliography and Credits

All cards can be downloaded at [www.siscatalyst.eu](http://www.siscatalyst.eu) or [www.playyourrights.com](http://www.playyourrights.com)

During the 4-year SiS Catalyst project we found several situations where children’s rights are violated even though there is much talk about child participation. Thinking of changing this scenario, we developed a toolkit to promote the right to participate. Pointing in the direction of a paradigm change but with a hands-on approach, we developed activities focused on attitudinal and institutional change. Our guide provides games and exercises that inform children and adults about the rights to participate in a playful and reflexive manner indicating concrete ways to promote the right to participation. We believe that children have the right to be equal whenever difference diminishes them; children have the right to be different whenever equality de-characterizes them. Thus children have the right to develop a relationship with adults and their institutions based on equality and equity.

- Cards 1-3 introduce the reader to SiS Catalyst, the project generating the toolkit and describe the ideas behind the Play Your Rights toolkit, its aims, objectives and target group.
- Card 4 is the Index which works as a menu of all the cards.
- Card 5 is a brief description of how to apply the cards.
- In Cards 6 and 7 the reader will find a discussion about children’s rights of participation.
- On Cards 8, 9, 10 and 11 are activities for people to introduce themselves bringing different aspects of their personhood to the group.

- Card 12 is a key activity through which the reader will learn how to develop a group contract, setting up rules in a democratic way.
- Card 13 is an ethical framework for working with children on participatory rights developed by UNICEF.
- Cards 14, 15, 16, 17 and 18 are respectively articles 12, 13, 14, 15 and 16 of the UN Convention on the Rights of the Child. These articles are related to the right of participation. The first step in working with children on their rights to participate is to inform them that they have these rights and put these rights into a context.
- Cards 19 and 20 were designed to debrief the content of these rights and put them into a context.
- Cards 21 to 40 are a selected series of games and exercises developed by Forum Theatre to explore situations where children's rights are violated and create feasible alternatives to overcome those violations.
- Cards 21, 22 and 23 explain in details how Forum Theatre works.
- Card 24 to 39 are games and exercises to explore situations of violations and prepare all the participants to perform.
- Card 40 is the description of a Forum session.
- Card 41 is related forum theatre dramaturgy and rules
- Card 42 provides the bibliography and credits.

There is no right or wrong way to use these cards, but remember this is a toolkit to foster children's participation. The aim is to promote children's voices as well as the ability to listen and therefore create a dialogue based on the rights to participate.

We recommend you begin by reading cards 1 to 6, especially no's 5 and 6 which deal directly with the participation rights. Card 13 sets out ethical principles for developing any work in this field.

It is an imperative that you then read the cards providing articles 12 to 16 of the UN Convention on the Rights of the Child. Once you have done that reflect, on your own activities and try to imagine how you could implement these rights at the interpersonal, group or institutional levels. You can pick one activity to incorporate into your practice or you may begin with presentation activities, group contract, introducing and debriefing participatory rights and staging children's rights.

Of course we hope that you will bring your experience and your own reflections on the theme and develop your own ways to foster children's participation. Taking part in training courses and workshops may help but you should take the chance to develop your own dialogic practices. Explore and Enjoy!

