Pilots Resource Pack

Resources for the professional development of explainers in science centres and museums

Edited by Camilla Rossi-Linnemann and Michael Creek / **JUNE 2010**

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www.museoscienza.org

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**Supporting power point presentations and materials
(to be downloaded separately)**

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Foreword

Who are explainers, and how is their role evolving? There are different names for the people working in a science centre or museum who come into face-to-face contact with the public – animators, mediators, facilitators and pilots, among others. Between 2008 and 2010, the Pilots project, coordinated by Ecsite, worked towards the professionalisation of the role of explainers in science centres and museums through developing European training courses and materials, through community-building and through research on the role of explainers, with a focus on adult learning. Science centres and museums are changing. As a result, the role of the explainer is changing too. The Pilots project deepened our understanding of this new profile across Europe, and raised awareness of the importance of the explainer across the European network of science centres and museums. The project built on work carried out in the previous FP6 European project Dotik and the Ecsite thematic group for human interface and explainers, THE Group, with a particular focus on their importance for lifelong learning.

The work of Pilots focused around five key areas:

1 - AWARENESS

With its results and findings, Pilots worked to raise awareness of the explainer's profile among science centres and museums and beyond our field, to reflect on this and collectively make groundwork towards a European definition of this profile and the relevant training needs for adult engagement in science.

2 - RESEARCH

The Pilots project research began by collecting scientific literature, good practices, and results of other projects about the professional profile of explainers. The quantitative and qualitative data produced within the project gave a unique insight into explainers and training practices in Europe.

3 - TRAINING

The Pilots training courses enhanced adults' engagement with science in science centres and museums, through the training of the explainers involved in the project, and in the long term, through dissemination to the Ecsite members, as well as other stakeholders. The four training courses organised within the project lifespan were at once a way to test training methodologies and a way to disseminate best practice, at local and European level. The multiplying Co-Pilots events allowed this best practice to spread throughout institutions.

4 - MATERIALS

The training materials developed within the project, a selection of which are contained in this document, were compiled to form a resource centre, available to explainers all over Europe.

5 - COMMUNITY

Lastly, a true community was established and is being developed, of individuals interested in the role of the explainer in science centres and museums, sustained on the Pilots Hub, http://pilots-hub.ning.com, our lively web platform that operates as a European community resource for explainers.

The pedagogical materials contained within this document were developed by science communication experts from the various European science centres and museums involved in Pilots, and have been thoroughly tested and reviewed throughout four international training courses and subsequent follow-up activities. Of course, these materials are just a part of the project results – I therefore invite you to join us on the Pilots Hub to learn more about the profile of explainers, to discuss the results and to share your own experiences.

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Introduction by the editor

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Explainers in science centres and museums are highly qualified professionals who constantly work to adapt to the current needs of new generations of visitors. Research conducted as part of the Pilots project shows that explainers are flexible communicators, who know how to listen to their various audiences and mediate between them and the world of science. In order to do this effectively explainers need to continually develop their skills by searching for new ways to communicate both basic scientific principles and the latest findings and perspectives of science research.

We believe that the best way to increase one's knowledge and abilities is to reflect on field-practice together with others. The activities propose new practical ideas, guided conversation and prompts for reflection that allow explainers to explore – together with their colleagues – issues that are pertinent to their professional development and practice. Activities and materials have been tested in four Pilots international training courses by explainers from over 25 counties, representing over 50 different institutions.

The resources are aimed at professional explainers and they are therefore intended mostly as practical activities that serve as "tools for thought". Rather than giving theoretical frameworks, they want to stimulate independent thinking and prepare for further personal, free learning. Activities are thus based on the idea of reflective practice, where participants are invited to experience some practical activities and use them to reflect on their own professional practice. All activities involve the sharing of personal reflections among participants and materials are thought of as triggers for thought and conversation.

These resources were written to support both expert and new explainers in their training, focusing on four areas of interest:
- The first cluster of activities is dedicated to reflections on the role of the explainer and it includes activities that help reflect on the specific skills and abilities that all explainers should have.
- The second cluster focuses on the idea of enquiry-based learning and on how to develop activities for visitors that take into consideration their pre-knowledge, interests and thinking patterns.
- The third cluster is dedicated to the development and conduction of debate activities which may be particularly interesting for those who want to involve adult visitors in controversial issues of current science.
- The last activity is dedicated to science shows as a means to engage visitors by creating emotionally charged experiences and environments.
- Resources include detailed descriptions on how to conduct the activities, printable handouts, supporting power point presentations and useful readings.

TIPS ON HOW TO USE THE RESOURCES

- Select and tailor these resources to suit the time and content needs of your institution. Finding the time for carrying out training sessions is – in fact – both essential and difficult. It is thus not necessary to carry out all the activities included in one cluster. Feel free to pick and choose!
- Think about how the activities you choose fit the needs of your institution. What do your colleagues already know? Can you create an introduction and conclusion that frame the workshops within their everyday practice? Be creative!
- Make sure you are confident with leading the activity and that you know what you want to come away with before you start. You might want to run through it first with your co-leader or another colleague.
- Make sure you have all the materials and handouts ready. You might want to translate them in your local language to make them more accessible to your colleagues.
- Lead the activity in a relaxed and informal way. Give people enough time to carry out the activities and keep them engaged and motivated by encouraging input from everyone. Remember you are there as a facilitator, to help your colleagues reflect on their practice.
- Think about how you are going to capture the reflections that emerge from the workshop. You can use flip charts, coloured post-its, photos and personal notes that you may want integrate in your conclusions. If you can devise an effective monitoring system it is useful to give feedback by sending participants a brief report of the workshop with findings and photographs.
- Spend a little time after the workshop to discuss the experience with your co-leader and colleagues. Self evaluation is precious: how did you feel the workshop went? What would you do differently the next time?
- Please note that activity descriptions refer to supporting materials and power point presentations that can be downloaded separately.

To share your results with Europe's community of explainers, and keep in touch with other explainers and trainers around the world, sign up on the Pilots Hub:

http://pilots-hub.ning.com

3.
Evolving dialogue

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The wording and the rhetoric used to justify the need of public communication of science has dramatically evolved in the last 20 years or so. The limits of the so called "deficit model" have been clearly identified and embedded in most national and European policies. We have witnessed a tangible transition: in acronyms, we have moved from PUS (Public Understanding of Science, with a strong focus of policies on fighting scientific illiteracy through a unidirectional transfer of information) to PEST (Public Engagement in Science and Technology, where the attention is directed in convincing the public of the importance of participating to the scientific debates) and PUR (Public Understanding of Research, where science is seen more as an ongoing activity than as a series of results)[1], to what we are generically referring to as science-society dialogue, which we can define as a critical exchange of knowledge and values between the scientific community and the non scientists aimed at a concrete change of perspective in both actors.

"Dialogue", "engagement" and "participation" have now become unavoidable keywords. Several social scientists[2] have helped us understand that the chains of equations that link scientific literacy, engagement in science and technology, engagement in science and technology careers, public support for science and technology, etc. are far from being linear, and are strongly dependent on the evolution of science itself. Much effort has been deployed to blur the frontiers between science and society, for example by moving from a "science and society" to a "science in society" perspective[3], and we can bet the next step will be to further enhance the "society in science" mode on one hand (implying a stronger engagement of citizens in understanding science to become dynamic actors in scientific development), and the "science for society" mode on the other hand (implying a stronger engagement of scientists in understanding what the desired and undesired, asked and unasked scientific developments are, to become dynamic actors in the social development).

Words have indeed changed. But also moving from words to actions we can be quite optimistic: whether the trend is supported top-down or bottom-up (that is, generated by opportunities of funding or generated by public demand), the number of initiatives aimed at engaging the public, involving participation, focusing on controversies, demanding the expression of the public hopes and concerns, etc, has enormously increased. This is well documented, for example, in the analysis of the UK case edited by Jon Turney for the Wellcome Trust[4], or, to remain closer to the science centre sector, by the many recent FP6 projects focusing on dialogue and participation, in which Ecsite was directly or indirectly involved: Cipast, Decide, Dotik, Nanodialogue, Messengers, Meeting of minds, Alter-Net, and so on.

The main challenge seems now to move from "dialogue events" to a dialogue culture. It is essential that dialogue is intended by the parties concerned not just as a new umbrella to reproduce the usual strategies, but as a concrete mean to obtain new results. That is, as a pathway to provoke a however small social and political change. This implies a shift of the focus from the methodologies of dialogue to its objectives.

Science centres are indeed among the best institutions where to achieve this. But they still have not fully exploited this opportunity. Let's ask ourselves two questions.

First: are science centres today the place where citizens have the instinct to go when they want their voice to be heard on controversial issues involving scientific expertise? The answer is still mostly no: science centres organise exhibitions and events on controversial issues, from GMOs to vaccines to nanotechnology, but are very seldom used by pressure groups of citizens, watchdogs or advocates of demand-driven research as a platform to practically defend their issues and to reach their objectives[5].

Second: are science centres today the place where scientists think to go when they want to defend their particular viewpoints, to lobby, or to stage the competition among them for cultural and financial recognition? The answer is, once again, mostly no: science centres organise debates on front-end current research, but have mostly failed to convince scientists to use them as a public stage on which, for example, to advocate for investment in the ITER reactor rather than in energy saving domestic appliances, or in string theory rather than loop quantum gravity research. These functions – which are essential for a social dialogue to occur, - are still covered mostly by mass media, where the battles among scientific institutions to conquer the public opinion is clearly experienced by any science journalist. Yet science explainers can play a key role in proposing innovative and engaging debate activities and dialogue situations wherever possible.

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1 - The literature on the subject is quite vast: it has been usefully reviewed by Bruce Lewenstein of Cornell University at www.people.cornell.edu/pages/bvl1/scicomm.html. From a science centre perspective, see also Chittenden et al. (eds) Creating Connections, Altamira press, 2004.
2 - Such as Brian Wynne in the UK, Michel Callon in France, Helga Novotny in Switzerland, Massimiano Bucchi or Pietro Greco in Italy, to quote but a few.
3 - This is clearly visible by reading the evolution of the introduction of the science and society
sections in the 5th, 6th and 7th Research framework programmes of the European Commission.
4 - J. Turney, ed., Engaging Science, Wellcome Trust, 2006.
5 - A series of contributions on the future of dialogue, mainly form the science centre community, have been published on the latest issue of the online Journal of Science Communication (jcom.sissa.it).

Suggested reading
- *The UK Government's Approach to Public Dialogue on Science and technology*
  http://www.sciencewise-erc.org.uk/cms/assets/Uploads/TrackedDocuments/Sciencewise-ERC-Guiding-Principles.pdf
- *Related resources website*
  www.sciencewise-erc.org.uk/cms/assets/Uploads/TrackedDocuments/Sciencewise-ERC-Guiding-Principles.pdf
- *Public Engagement in Science – Report of the Science in Society Session*
  http://ec.europa.eu/research/science-society/document_library/pdf_06/public-engagement-081002_en.pdf
- *Participatory Methods overview by the Danish Board of Technology*
  www.tekno.dk/subpage.php3?survey=16&language=uk
- *Participatory Methods Toolkit – A practitioner's manual*
  www.kbs-frb.be/publication.aspx?id=178268&LangType=1033
- *Cipast in practice*
  www.cipast.org/download/CD%20CIPAST%20in%20Practice/cipast/en/whatelse_4.htm
- *Annotated Bibliography on Citizen Participation and Local Governance*
  www2.ids.ac.uk/logolink/resources/annotbiblio.htm
- Chittenden, David, Graham Farmelo and Bruce V. Lewenste in *Creating Connections: Museums and the Public Understanding of Current Research*. AltaMira Press, 379 pgs., 2004. Google books link: http://books.google.com/books?id=ZkVyylNpWtUC
- Field, H., & Powell, P. *Public understanding of science versus public understanding of research*. Public Understanding of Science, 10(4), 421-6, 2001
- *Citizens science*
  www.at-bristol.org.uk/cz/
- *Play Decide*
  www.playdecide.eu

HOW TO ENGAGE ADULTS IN CONTROVERSIAL ISSUES THROUGH EVERYDAY LIFE?

THIS WORKSHOP IS DESIGNED TO EMPHASISE THE IMPACT OF SCIENCE IN EVERYDAY LIFE, TO INVOLVE ADULTS IN DISCUSSION AROUND SCIENCE AND SOCIETY TOPICS AND CONTROVERSIAL ISSUES.

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AIMS
One aim of this workshop is to make explainers aware that there is more than one way to treat a scientific topic, and that usually science is closely linked with our everyday life and has an impact on our choices in society. It shows that starting from our everyday life is a very efficient way to involve people in discussing science and society topics.
It also aims to show that starting from everyday objects you can discuss about many different scientific and science and society topics and that adopting a multi-angle approach can be very effective.
The session is composed of two different activities: "the shopping bag activity" and "the everyday object activity". These activities can be done separately, but are more effective if done in the same training session.
This session can be very useful to start the designing of a new activity on any scientific topic by a similar workshop.

YOU CAN USE THIS WORKSHOP TO
• Give an example of an activity that generates questions, discussion and debates among adults.
• Establish links between everyday life, fundamental science and science and society topics.
• Show the importance of choosing a specific angle and formulation of the topic when triggering discussion among adults.
• Design your own debate activities.

TAKE HOME IDEAS

YOU CAN DESIGN AND REPRODUCE EFFECTIVE ACTIVITIES WITH VERY SIMPLE MATERIAL (FOR EX. FOOD PACKAGING OR EVERYDAY OBJECTS).

WHEN CONDUCTING DEBATE ACTIVITIES YOU MUST PREPARE WELL ON THE TOPIC TO BE ABLE TO FACE THE REACTIONS OF YOUR VISITORS.

**HOW TO ENGAGE ADULTS IN CONTROVERSIAL ISSUES THROUGH EVERYDAY LIFE? -
BEFORE YOU START**

Timing
2 hours

Workshop facilitators
This workshop can be conducted by one workshop facilitator, although it is useful to have a co-facilitator who can note down remarks, conduct observations, document the work with photos and recordings.

Number of participants
From 3 to 30.

Space organisation
Participants will work in groups of 3 to 8 people. They will be gathered around tables.
To introduce the workshop, lead large-group discussion and draw conclusions you might want to consider having a large flip board on which to note comments.
Projector and screen are optional but recommended if you intend to use the ppt (PPT3.1) to introduce the workshop and give instructions.

Materials
- 4 to 6 shopping bags (1 per group) containing about 10 different food packages: for ex. cookies, canned vegetables, pre-cooked dishes, cooking oil, meat, etc. One of them should mention "may contains GMOs", others should be organic products, some others with the indication "does not contain GMO", some with soja, corn, cotton oil (ingredients that may be issued from GMO).
- 1 bag/box with about 10 different everyday objects that can serve as a starting point for discussing fundamental science or science and society topics, for ex. an imported bottled water, some pills, a cell phone, a biometric transport pass, polyester and cotton boxer shorts from China, a counterfeit gold watch, a plastic bag, a battery, a TV remote control, a fresh orange, a beer can, etc.
- flip charts (one per group)
- Different coloured markers for participants
- Computer and video projector
Available for download:
- Workshop leading presentation: PPT3.1

The workshop at a glance
5 min	Greet participants, introduce yourself and explain why you are doing this training
5 min	Introduction to the first activity
20 min	Activity 1: the shopping bag activity
25 min	Presentation of the results of each group and general discussion
30 min	Activity 2: the everyday object
30 min	Presentation of the results of each group and general discussion
5 min	Conclusions by workshop leader

Tips and tricks for choosing the objects

Some objects are easier to use than others for science and society topics. The objects you choose could have a link with the general topics of global warming (imported goods, high cost energy…), security (biometry devices), health, social inequity and so on.

**HOW TO ENGAGE ADULTS IN CONTROVERSIAL ISSUES THROUGH EVERYDAY LIFE? -
THE WORKSHOP STEP BY STEP**

<u>Introduction of the first activity</u>

Time: 5 min
Setting: You can have the participants gathered in one big group or already split in smaller groups of 3 to 8.

What to do:
- After a very short introduction on the difficulties that explainers may encounter when they want to involve adults in discussion and debate, ask participants to split in smaller groups (3 to 8) around tables.
- You can explain that this activity has already been tested with adult visitors in a science centre as a starting point to discuss GMOs and the legislation on food packaging.
- Put on each table a shopping bag containing food packaging and give participants the following instructions: "You have 15 minutes try to find out if there is any GMO (genetically modified organism) food in your bag." You can add, depending on your public, a little story to make the activity more concrete. For ex: "you are having friends over for dinner and you know that they are really anti-GMO, so you want to make sure that what you will give them to eat does not contain any GMO."

<u>Activity 1: the shopping bag activity</u>

Time: 20 min
Setting: Participants are gathered around the table with their shopping bag.

What to do:
- Each participant will start reading the information on the packaging, each taking a different package or discussing the same one all together (as they wish).
- Move from table to table taking notes and listening to the questions, information and discussions triggered by the activity.

<u>Presentation of the results of each groups and general discussion.</u>

Time: 25 min
Setting: As above.

What to do:
- Ask participants about the topics they discussed during the activity. What were the questions that were raised?
- Note down all the topics and questions and try to identify the more "fundamental science" questions vs the science and society ones. Help participants understand how many questions are raised by such an activity. The workshop is not the place where all questions can be answered, but – in order to avoid too much frustration among participants – you should try to answer al least some of them.

Notes on the discussion on topics

Usually the topics that emerge are numerous and diverse. From fundamental science questions such as "What is a GMO? How does it differ from plant selection or transformation?" to science and society topics such as "Is it safe for the health?" and also very practical questions on "How do we read the information on a package?" or "What are the laws concerning GMO in my country? Is it allowed to have GMO in food? And if so, in which food?

Using this activity with visitors

- You can use this activity with adult visitors. In this case you can ask the following questions:
- Did you find any GMO food?
- Is there something written on the packaging indicating the presence or absence of GMO?
- What are the obligatory indications that you should find on a food package?

This very simple activity generates a lot of questions. The explainer follows the lead of these questions to give information to the public. In this case, the duration of the discussion generated can be quite long (around one hour). The explainer will have to be very well prepared (fundamental science, economy, law, and so on) which means a lot of training materials or training with science and law specialists. He/she can lead the debate, making people discuss on topics linked to the environmental or health impact of GMO. You can also decide to involve science and law specialists in the activity itself, bringing together visitors and experts.

Some ideas of objects, topics and catchy phrases

Object: Orange
Examples of fundamental or applied science topics
- plant reproduction
- what is a fruit, a seed?
- geometry volumes vs. surfaces
- cellular organization of plants

Examples of science and society topics
- ecological foot print,
- sustainable development
- global warming
- grey energy: what is the required energy to put one litre of orange juice on your table ?

Examples of phrases to start a discussion
- Should we eat only fruit from our country and in the right season?
- Would you be ready to stop eating out of season fruit?

Object: Travel Pass
Examples of fundamental or applied science topics
- electromagnetism
- smart card technology
- nanotechnology

Examples of science and society topics
- security vs. individual rights
- biometry: applications in everyday life

Examples of phrases to start a discussion
- Do you agree to a system that knows about each of you travels for security reasons?

Object: Polyester and cotton boxer shorts
Examples of fundamental or applied science topics
- polyester chemical composition
- cotton farming

Examples of science and society topics
- GMO cotton: pros and cons
- water waste and recycling
- the use of herbicide and health
- the work of children and relocated industry

Examples of phrases to start a discussion
- Would you buy imported clothes made by children if they were much less expensive?

Participants will find many other ideas.

Activity 2: the everyday object activity

Time: 25 min
Setting: Participants are gathered in small groups of 3 to 8 around tables.

What to do:
• Ask each group to choose an everyday object in the bag/box and give the following instructions: "Starting from that object, make a list of: 1. fundamental science or applied science topics; 2. science and society related topics that may be triggered by the object itself."
• Then ask groups to find a question or a phrase that could trigger a discussion on one of the science and society topics that they have identified.
• PPT3.1 with the information on the activity can remain available during the activity to help participants remember instructions.
• Move from table to table taking notes and listening to the questions, information and discussions triggered by the activity.

Presentation of the results of each groups and general discussion

Time: 30 min
Setting: Participants can stay sitting around the tables.

What to do:
• Ask each group to present the object they chose and to list all the "fundamental science" and the "science and society" topics as well as the phrase they found to trigger discussion.
• If there is time enough, the phrases can be tested to see if they generate discussion or not.
• To stimulate the discussion you can ask some questions such as: do you think this is an interesting way to start thinking about a topic when we design a new activity? Could we design an activity for the public that is similar to what we have done here? Are some objects more efficient than others to raise science and society topics? What are the characteristics of an efficient sentence/question to start a discussion?
• Stimulate discussion also on other topics such as: "Where do we meet science in our everyday life? How – through this very practical approach – can we involve adults in discussing science and society topics? What is the role of the explainer when leading this type of activities (explaining scientific concepts, facilitating multi angle approaches of a scientific topic, provoking debate, etc...)

Notes

DISCUSSION GAMES

INVOLVING ADULTS IN DEBATE

AUTHOR
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AIMS
The aims of this workshop are:
- play two discussion games (Taboo and Debate Continuum)
- present techniques of informal discussion about science
- discuss how to use the games in different institutions
- integrate these techniques in the debate about science in society

Museums and science centres are increasingly becoming places where science is not just exhibited but also discussed. A new kind of science is presented: contemporary science, post-academic science, a science that is more debatable and less crystallized, that needs new tools in order to be communicated and formulated. This workshop presents some tools developed by the science centre At Bristol in the UK and used in new ways in Italy by the National Museum of Science and Technology in Milan also in connection with historical objects.

The tools are so flexible that they can be used in different institution with different aims: to discuss social implications of science, to present historical collections more effectively in museums, to train teachers and so on.

The games are inspired by those produced by CitizenScience (At Bristol-Wellcome Trust):
www.at-bristol.org.uk/cz/teachers/Default.htm

YOU CAN USE THIS WORKSHOP TO
- Engage visitors in discussions about contemporary scientific topics.
- Propose a view of science which deals not just with facts but also with different points of view, consensus, ethics, and uncertainty.
- Stimulate visitors to express their personal point of view and debate.
- Find out more about historical objects in an uncommon way.
- Manage debates.

TAKE HOME IDEAS

✂ -

> GAMES ARE A GOOD WAY TO STIMULATE DEBATE ON CONTEMPORARY SCIENCE
> AND DELICATE SOCIAL TOPICS.

> GAMES ARE A GOOD WAY TO MAKE ADULTS INTERACT, AS THEY ARE A PLEASANT AND "LIGHT" WAY
> TO STAGE AND PUT FACE TO FACE DIVERGING POINTS OF VIEW.

> DIFFERENT TYPES OF PUBLIC REACT DIFFERENTLY TO GAMES.

DISCUSSION GAMES - BEFORE YOU START

Timing
1.5 hours

Workshop facilitators
This workshop can be conducted by one workshop facilitator, although it is useful to have a co-facilitator who can note down remarks, conduct observations, document the work with photos and recordings.

Number of participants
From 4 to 30.

Space organisation
Participants will work in groups of 4/5 people. They will be gathered around tables.
To introduce the workshop, lead large-group discussion and draw conclusions you might want to consider having a flip chart on which to note comments.
Projector and screen are optional but recommended if you intend to use PPT3.2 to introduce the workshop and give instructions.

Materials
• Flip chart and markers
Available for download:
• Workshop leading presentation: PPT3.2
• Debate Continuum instructions and cards (one copy per group): M3.2.1
• Taboo cards (one set per group): on genetics M2.2.2 or on paper: M2.2.3

The workshop at a glance
5 min   Greet participants, introduce yourself and explain why you are doing this training
20 min   Game 1: Debate Continuum
20 min   Game 2: Taboo
30 min   Large group discussion
20 min   Final presentation

Notes

DISCUSSION GAMES - THE WORKSHOP STEP BY STEP

Game 1: Debate continuum

Time: 20 min
Setting: Participants split in smaller groups of 4/5 people and sit around tables.

What to do:
• Ask participants to split in small groups (4/5 persons each).
• Give them the handout with the instructions and cards (M3.2.1) and go over the rules together.
• Ask groups to play the game.
• After 15 minutes interrupt the game.

Game 2: Taboo

Time: 20 min
Setting: As above.

What to do:
• Ask participants to split in small groups (4/5 persons each).
• Give each group a set of cards (M3.2.2 on genetics or M3.2.3 on paper or other that you may wish to prepare) and go over the rules of the game together: one at the time participants should pick a card and explain the word on the card to the other members of the group. The word on the card cannot be pronounced. Each person in the group has 1 minute to describe as many words as possible to the team. Used cards do not go back in the pack. At the end of the game, write down the unknown words. (You can play the same game using drawings instead of sentences, like in the classic "Pictionary" game).
• After 15 minutes interrupt the game. The team with the most words guessed wins.

Large group discussion

Time: 30 min
Setting: Participants sit where they are.

What to do:
• Ask participants if the games were interesting, useful, etc.

Tips for discussion

What happened?
Did you find the games interesting?
Did you enjoy playing?
Did you find any problems?
Positive/negative aspects of the game
Do you think you can integrate them in some of your activities?

Which kind of topics can be discussed using games?
Contemporary science and research / Social and ethical aspects / Historical objects

With which kind of public can we use games?
Adult visitors / Teenagers / Teachers

Final presentation

Time: 15 min
Setting: Participants sit where they are.

What to do:
• Use PPT3.2 to present different ways of playing the games.
• You can use M3.2.4 as a presentation or as a handout to give an overview of which institutions are using debate activities to engage adult learners.

REFLECTING ON SETTINGS FOR DEBATE

EXPLAINERS REFLECT ON HOW WARM-UP ACTIVITIES CAN CREATE AN EFFECTIVE SETTING FOR CONDUCTING DEBATE ACTIVITIES.

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AIMS
Reflect on how a good "warm up" activity can create a good setting for debate.

YOU CAN USE THIS WORKSHOP TO
- Reflect on the characteristics of a good "warm up" activity in order to design new effective activities,
- Think about the characteristics of a good setting for debate: making people feel comfortable; helping them to interact with the rest of the group; approaching a topic.

Activities – especially debate activities – include three basic "ingredients": the individual participant, the interacting group, the topic which is being discussed.
In the workshop we will thus analyse how to:
- help the individual feel comfortable
- help the group interact effectively
- help participants approach a topic with which they may be familiar or not
We are proposing three warm-up activities, but you can substitute or integrate them with activities from your own institution. This may facilitate reflection.

TAKE HOME IDEAS

WARM-UP ACTIVITIES CAN BE USED TO PREPARE EFFECTIVE SETTINGS.

EFFECTIVE DEBATE APPEARS TO OCCURS WHEN:
- PEOPLE FEEL COMFORTABLE
- PEOPLE ARE ENCOURAGED TO INTERACT WITH THE REST OF THE GROUP
- SOME INITIAL INFORMATION ON THE TOPIC OF DEBATE IS GIVEN, PROVIDING PARTICIPANTS WITH BASIC INFORMATION

REFLECTING ON SETTINGS FOR DEBATE - BEFORE YOU START

Timing
From 2 to 2.5 hours (or less if you choose to work on only one or two warm-up activities)

Workshop facilitators
This workshop can be conducted by one workshop facilitator, although it is useful to have a co-facilitator who can note down remarks, conduct observations, document the work with photos and recordings.

Number of participants
From 4 to 30.

Space organisation
Participants will work in pairs and small groups. Make sure you have enough chairs and table space for them to work comfortably together.
To introduce the workshop, lead large-group discussion and draw conclusions you might want to consider having a flip chart on which to note comments. Projector and screen are optional (if you decide to use the supporting PPT).

Materials
• Flip chart and markers
• Pens for participants
Available for download:
• Workshop leading presentation: PPT3.3
FIRST ACTIVITY
• Pictures of objects related to the chosen topic (for example you can search on the google images
  for "science icons" or any other topic which you may want to debate)
SECOND ACTIVITY
• Copies of blank message grids (at least one per group, but make more copies
  in case participants want to correct their work)
• Post-its
• Large tip black markers (one per group)
• Available for download:
• Communication grids (at least one per group): M3.3.1
• Communication cards with messages (one card per group): M3.3.2
THIRD ACTIVITY
• Set of cards with words (one set per group): the words suggested here are have all been taken from the front pages of
  popular newspapers, but you can use any set of pictures that loosely relates to the subject you are going to debate, for
  ex. food, space, health, etc. The words can also be simple/difficult in relation to the target group, as this game can be
  played by all ages.
Available for download:
• Taboo cards on science news (one set of cards per group): M3.3.3

The workshop at a glance
5 min	Greet participants, introduce yourself and explain why you are doing this training
10 min	Introduce workshop and take home ideas
5-15 min	Activity 1: who am I?
40 min	Activity 2: the communication board
5-15 min	Activity 3: taboo
20 min	Small group discussion
30 min	Large group discussion
5 min	Conclusions by workshop facilitator

REFLECTING ON SETTINGS FOR DEBATE - THE WORKSHOP: STEP BY STEP

Introduce workshop

Time: 10 min
Setting: Participants sit at tables

What to do:
- Address the group by introducing the concept of the workshop: the idea is to think about what can help
  to create an "effective setting" for debate (You can use the PPT3.3 if you think it is useful).
- This workshop is in fact designed to support activities on debate,
  yet it can also be used to reflect on warm-up activities in general.
- Warm-up activities are used every day in science centres and museums.
  They allow us to create a setting in which people can fully and comfortably participate in the experience.
- Activities – especially debate activities – include three basic "ingredients":
  the individual participant, the interacting group, the topic which is being discussed.
- We can thus reflect on how our warm-up activity:
  helps individuals feel comfortable, making it easy for them to share their knowledge and beliefs.
  helps the group interact effectively, creating a feeling of trust and community among participants,
  allowing space for individual opinion and reciprocal listening.
  helps participants approach a topic with which they may or may not be familiar,
  starting to stimulate personal ways of looking at it and understanding what others already know about it.

Activity 1: who am I?

Time: From 5 to 15 min depending on number of participants
Setting: Split participants in groups of approximately 4.

What to do:
- Explain the rules of the game: each person in the group is asked to look at the pictures on the table
  and quickly choose one of them which he/she thinks describes him/her well enough.
- Each participant is then asked to present him/herself (in a max of 5 minutes) to the rest of the group
  by motivating the choice of the image.
- Ask participants to try and remember what happened, how they felt etc (this will be useful in the final discussion).

Warm-up 2: the communication board

Time: 40 min
Setting: Split participants in pairs

What to do:
- Give each group a sheet with an 8x8 square grid (M3.3.1), a black large-tip marker and a message card (M3.3.2)
  with a "secret" message that they have to communicate to other groups
- The groups have 20 min to "compose" the message on the grid, following this rule: they are allowed to colour in as
  many squares of the grids as they want, but they can only colour them in completely – no half-squares are allowed.
- When finished, ask each group to stick its message grid on the wall or on a table.
- Invite all groups to go round the room, look at other groups' message grids and write on a post-it
  near each message grid what message they think it transmits.
- Ask participants to try and remember what happened, how they felt etc (this will be useful in the final discussion).

Notes on how to choose the "messages" for the activity

- If you give two groups the same message you can then reflect on the different strategies
  they have used to communicate it.
- Giving different groups different types of messages (words, sentences, numbers)
  is interesting because strategies may be different.
- Choosing words, sentences, numbers of 8 digits helps, as it is the number of lines on the board and also
  the number of bits in a byte (so if you do the activity with your visitors you can link it with a reflection on
  computers and digitalisation processes).

Warm-up 3: Taboo

Time: From 5 to 15 min depending on number of participants
Setting: Split participants in groups of approximately 4.

What to do:
• Give each group a set of cards (face down so that participants can't see the words).
• Ask each member in turn to pick up a card and has to help the others guess the word on the card.
  He/she can say anything except for the word itself (like in the classic "Taboo" game).
• The first group to finish all the cards (you can choose how many to give to each group,
  depending on how much time you have) wins!
• Ask participants to try and remember what happened, how they felt etc (this will be useful in the final discussion).

Small group discussion

Time: 20 min
Setting: As above.

What to do:
The groups are given a reflection task. They discuss and then write on a poster what are the practical features that made each of the three activities good for:
• Making people comfortable (making it easy for them to share their previous knowledge and beliefs)
• Helping people to get to know the group (facilitate the interaction within the group and not only with the explainer)
• Stimulating a first approach to the topic (encouraging different ways of looking at a same topic and setting the ground for presenting one's own opinion as well as understanding what others know about it)

Time for large group discussion

Time: 30 min
Setting: Participants sit all together.

What to do:
• Prompt large group discussion on what happened and what participants have felt and observed
  when playing the different games.

Examples of questions for prompting large-group discussion

What can be the advantages of using each activity as an introduction?
Which role did competitiveness play? Do you necessarily need a reward?
What was the balance between explainer-centred time and player-centred time?
If you had used this activity as a wrap up at the end of a workshop do you think reactions would have been different?
Do you feel these activities were more fit for adults/teenagers or children? Why?
Did you feel empowered/comfortable from the very start of the activity?
Can you identify the reasons of your comfort/uneasiness?
What are the ways in which the activity stimulated you to contribute your knowledge?
Does the number of people influence the setting? How?
Is it good that activities resemble games that are widely known?
Would the activity help to introduce "difficult" topics? Why?
Are certain aspects too "personal"?
Is it better if the activity is dynamic?
Do shy people get involved? Why?
Does it help if the activity has a product "for someone else"?

Conclusions by workshop leader

Time: 5 min
Setting: Participants sit at tables and workshop facilitators draws conclusions.

What to do:
• Summarise the concepts that have emerged from the discussion, making sure you embrace all points of view
  and point out the most interesting findings.

Contributions and acknowledgments

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