SIXTH FRAMEWORK PROGRAMME

SCIENCE AND SOCIETY 15

SPECIFIC SUPPORT ACTION

Publishable Final Activity Report
DNA Traveling Exhibition and Science Theatre

DNA TRAVELING EXHIBITION AND SCIENCE THEATRE
Acronym: DNA-TEST
Project no: 036657

Period covered: from 1/02/2007 to 30/09/2008
Duration: 20 months

Project coordinator: VIB

Project execution

The objective of DNA-TEST was to develop a traveling exhibition on selected life science topics combined with a short live theatre performance. These user-friendly and low-threshold scientific information products are specifically directed towards members of the public unfamiliar with research and science, including senior citizens.

DNA-TEST is a flexible science communication project with a very low-threshold and optimal mobility. These are important assets in different ways:

- It doesn't require prior knowledge of life sciences
- It reaches out to communities that have no interest in science and hence will not take the first step to get in touch with research and innovation
- It addresses children and youngsters in a non-school setting
- It demonstrates that science is not limited to laboratories
- It introduces the life science through every day and real life examples

The aim was to develop an exhibition kit that is easy to integrate into a standard rented trailer and a science theatre kit allowing users to set up the theatre performance. Via a 'user's network' that brings together European bioscience communicators interested to buy the developed materials at limited cost, the kits will be available for distribution throughout Europe and beyond the partners of the project. An elaborate communication and promotion campaign has been staged to disseminate DNA-TEST to potential partners.

These project objectives are still valid today. Research and innovation are important pillars in Europe's knowledge based society. Many aspects of research and especially life sciences, have a direct impact on our lives. Unfortunately not all communities are aware of ongoing research and innovation projects. It is however imperative that the European society as a whole is well informed and engaged in the dialogue on scientific research. Therefore it is essential that the communication on various topics of life sciences research is taken up with all members of society and does not exclude specific groups, including those with little or no access to science .Life sciences and biomolecular research are sensitive topics that deserve special attention.

There are different science communication programs up and running throughout Europe, addressing various target groups within the European society. But there are different hurdles in the current science communication efforts. An important barrier is that many science information products presume prior basic knowledge of the addressed science topics, or require a certain degree of science education. This limits the number of people and the communities that can be reached via ‘traditional’ public outreach projects. These approaches exclude the majority of our senior citizens and also younger adults with limited knowledge or interest in science. Nevertheless It is important that these target groups are addressed; they too are confronted with the results of life sciences as many applications have a broad use, but citizens are often unaware that they are the result of scientific research. If the citizens are to support the goals of Europe to develop into a strong knowledge based society, it is imperative that they are more aware of science, innovation and scientific breakthroughs leading to various applications.

Another hurdle is the current approach of youngsters (age 14 – 18). The existing science communication programs usually reach youngsters through school and often depend on the teachers who decide to engage in science school projects or not. In addition – at least in Belgium – teachers have less freedom to incorporate new items in their classes. This new 'guideline' starts in 2008 and makes the incorporation of new 'hot topics' in (life) sciences difficult/impossible if they are not addressed in the 'official' courses. Even if the teachers are interested, they are no longer able to change the existing science classes and incorporate new and up to date science topics. This makes the relevance for alternative science outreach projects to youngsters even more eminent.

Children (age 6 – 14) are an additional important target group. Studies show that the inspiration of children for science starts at an early age. Nevertheless very little life science communication projects focus on the age group below 14 years. So unfortunately there are not many opportunities for kids to come into contact with life sciences. Often science centers are the only ones focusing on this target group, but not all European countries have a science center (Austria for example has no science center) and not all science centers bring life sciences (e.g. the Belgian science center Technopolis has little or no life sciences in his exhibitions). In addition, science centers are often focusing on 'play' and not so much on 'science'. More and more it is under discussions if science centers are relevant to increase interest in science or not.

These different hurdles show that it is important to introduce science communication projects that take a novel approach, and reach out via different channels to a broader audience, and via different methods including already acknowledged target groups such as youngsters. DNA-TEST is life science communication project that aims to address these gaps in the current science communication and public outreach efforts.

Major achievements

DNA-TEST has accomplished the project objectives. A traveling exhibition was developed covering several life science topics:

- DNA and it's importance for life and life sciences
- Traditional biotech, featuring yeast and it's importance for the progress of science
- 4 examples of life sciences research and development results and their impact on human health:
    - Genetically modified bacteria combat intestinal infections
    - Nanobodies, novel future cures for diseases such as cardiovascular disturbances
    - A new vaccine prevents cervical cancer
    - Bacteria come to rescue of diabetes patients

Two hands-on activities were developed: (1) DNA isolation and visualization and (2) yeast visualization and fermentation.

An exhibition kit allowing third parties to use the information to develop the exhibition themselves will be made available through the website of the coordinator (www.vib.be; October 2008). The exhibition however has not been designed to fit within a rented trailer. Instead it was developed within 3 tents, allowing a much broader use (see work package progress). Brochures with low-threshold scientific information on these topics have been developed in 4 languages (Dutch, English, French and German) and were distributed at several occasions (see work package progress).

In addition, the live theatre performance has been completed and all information is covered in the science theatre kit.

The project has been presented at 'ECSITE', organized in Budapest 29 – 31 May, 2008. It was selected by the ECSITE organizing committee for a combined oral/poster presentation. Promotional flyers were distributed via the EC booth, during the workshops, and at various other distribution points throughout the conference and exhibition venue. Several science communicators have expressed their interest in using the kits for developing their own exhibition and science play. Many others are looking to use the developed materials (available in Dutch and German). One of the partners (PAN) will 'exploit' the developed exhibition and play further and make it available for interested parties. Third parties – which will be contacted via PAN – are to pay for the costs that are needed to set up the exhibition and play for the required time. Both PAN and the Austrian partner (DGT) will continue to include the exhibition and play in their public outreach activities.

The project realized a tour in three countries: the Netherlands, Austria and Belgium. The different locations were carefully chosen in order to address different target groups. The information that has been acquired at the different locations has been used to update and complete the exhibition and science theatre kit.

Summary of the project activities

Develop a **traveling exhibition** on selected life science topics with applications in both the medical and agricultural field, linked to everyday events, familiar to the public at large (WP1). A compact traveling exhibition has been developed. It consists of three individual exhibitions:

1. DNA-EXHIBITION
   Covers the information on DNA via posters and is the setting for a hands-on activity: isolation and visualization of DNA starting from different fruits and vegetables. The exhibition includes posters, leaflets, tables, chairs and cupboards.

2. YEAST-EXHIBITION
   Covers the information on yeast via posters and is the setting for the hands-on activity: visualization of yeast under a microscope and yeast fermentation and tasting. The exhibition includes posters, leaflets tables, chairs and cupboards.

3. APPLICATION-EXHIBITION
   Covers the posters with information on the 4 examples of life sciences R&D results and their impact on human health:
   - Genetically modified bacteria combat intestinal infections
   - Nanobodies, novel future cures for diseases such as cardiovascular disturbances
   - A new vaccine prevents cervical cancer
   - Bacteria come to rescue of diabetes patients

The three exhibitions can be set up in-doors or out-doors . Depending on the weather conditions, the available tents can be used for shelter, but are not essential to the set up.

In order to increase the flexibility of the exhibition, we opted to change the initial idea of using a rental trailer. We choose tents instead. It became clear during the brainstorm at the first partner meeting that a rental trailer wasn't the most appropriate vehicle to house the exhibition. There were different obstacles:

- Only a very limited number of people would fit into a medium size trailer.
- Most of the rental trailers have only one combined entrance/exit. This would create problems between people entering and exiting.
- During the summer, it would be very hot in such a cramped space.
- Not all locations allow for trailers to enter their premises

Hence all partners decided it would be better to foresee a more flexible and portable solution. Tents have turned out to be a excellent replacement, as they provide shelter from bad weather conditions. At the same time, when an indoor location is selected, the tents do not have to be used.

The information on the posters has been made available in a brochure (16 pages) which were distributed during the tour and at the different locations. The brochures contain more detailed information than the posters; allowing the readers to explore the science and developments in more detail.

Develop a low-threshold **science theatre performance** based on everyday situations linked to life sciences and genetic engineering (WP2). A play based on two characters – farmer Hans and his chicken DiNA – explains in a playful and interactive way the importance of DNA for all living creatures and the use of genetic engineering (inserting human DNA in the chicken DNA).

Set up of a pilot show case of the exhibition and the theatre performance at three European countries: Belgium, Netherlands and Austria (WP3). A tour has been developed for three countries: the Netherlands, Austria and Belgium. In the three countries, three different locations have been chosen:

- Netherlands: outdoor and indoor locations at recreation centres and museums
- Austria: outdoor locations (park and city center)
- Belgium: one indoor location was selected, mainly because it was an excellent trial case to confront people visiting a major indoor shopping event (jaarbeurs Gent), with science.

The different locations provided an ideal testing ground: different settings and different visiters.

Develop an **exhibition and theatre performance kit** that contains all information for third parties to set up the exhibition and play. Both are available at the website of the coordinator (October 2008). The kits were fine-tuned using feedback from the different locations. A questionnaire was developed and measured the quantitative and qualitative impact of the project.

Set up of a 'user's network' consisting of European bioscience communicators interested to use the exhibition and theatre performance kit in their science communication activities (WP4). Two partners (VIB and DGT) contributed to the user's network list. The project and pilot show cases in the different countries was announced to these international science communicators. The third partner (PAN) will take up the exhibition and theatre play in their science communications activities, and offer third parties the use of the exhibition and play providing all the necessary services and personnel (scientists for the exhibition, actors for the play, technical support, etc). This allows for the project to continue it's 'work' now the project is finished.

Set up of an elaborate communication and promotional campaign to disseminate DNA-TEST to potential partners (WP4). Promotional flyers have been developed to promote the project amongst the members of the user's network and at different locations and events. The project has been presented at 'ECSITE', organized in Budapest 29 – 31 May, 2008. The flyers were distributed at different distribution

points in order to reach the xx attendants of the conference. The project information is also available at the website of the coordinator and has been forwarded to different potential users via emailing and direct mailing by regular post.

Dissemination and use

The project has performed in the Netherlands, Belgium and Austria. In the Netherlands more then 2500 people have watched the show or actively participated in the hand-on experiments. In Belgium more then 5000 people did the same; Austria addressed 700 people.

This project shows that many people are interested in science when it is presented in a playful way. Children are the ones that are most enthusiastic and often bring their parents. Although adults are often shy to participate in the experiments, they will watch the children and hence also receive the information. The setting allows them to ask questions easily.

A broad network of science communicators has been made aware of the project and how it is available to them. The concept, texts and full details are available at www.vib.be. Pandemonia also offers the complete show at small cost (www.pandemonia.nl).