

*« Towards an international network of university groups
for scientific culture diffusion »*

*« Verso una rete europea di gruppi universitari
di diffusione della cultura scientifica »*

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Abstract

In the present day society, where science and technology have such a profound influence on the individual and social life, numerous initiatives are taken to improve and deepen the public awareness of science and to increase the interest of students for scientific studies and careers.

Among them, many interesting and important actions are taken by Public Authorities, from local to European levels, which include the support to large Science Museums and Science Centres, as well as the popularisation activities which accompany the major European research projects.

Numerous initiatives are also taken by scientific actors themselves, in particular in universities. Motivations, contexts, modes of action are diverse, but the direct contact with researchers is generally highly appreciated by the public, in particular the young people.

It is in this spirit of bringing science to the citizens, in a positive but critical spirit, that the five Faculties of Science in French speaking Belgium have decided to join their efforts in the Scité network, which they created in the year 2000 with financial support of the Région Wallonne and the Communauté française.

*The network main activity is the coordination of the various and abundant events organised in the Faculties of Science and in technical schools at the occasion of the yearly *Printemps des Sciences*. The *Printemps des Sciences* attracts, in the main cities of Wallonia and Brussels, a public of several tens of thousands visitors, in particular primary and (mostly) secondary school students, and gets a significant impact in the media.*

*The success of the *Printemps des Sciences* and of the other initiatives taken by the network (e.g. *Demain mon entreprise* and *Science au quotidien*) is largely due to the fact that, with quite modest financial resources (one half-time per university !), the network has been able to stimulate, enhance and coordinate in the different universities the participation of benevolent actors, from professors to undergraduate students: experience demonstrates that as soon as a coherent framework is offered, university actors are happy to share with the public and the youth their skills, their knowledge and, first of all, their enthusiasm.*

*It is interesting to note that, under a common denomination and using common communication tools, the activities organised for the *Printemps des Sciences* are different in every city. In Brussels, following a long tradition, more than 250 students in second or third year university studies present to the young visitors experiments and demonstrations which they prepared as a part of their academic training – thus not only passing a very positive message to the visitors, but also enhancing their own communication skills in a pedagogically very positive experience. In other universities, researchers and PhD students welcome the visitors, either in university laboratories or in the very centre of the cities.*

Based on this experience, we thus strongly believe that, at the university level, a flexible organisation with relatively modest material support can be very effective in mobilising good wills and enthusiasms. But this is at the condition that local specificities are taken into account and truly respected. A reasonable amount of support for the material coordination is also compulsory, in order to avoid from scientists an exaggerated investment, which after some time could turn into discouragement in view of the heaviness of the task – scientific research being, after all, the first task of researchers !

Our experience also leads us to strongly believe that, at a European level, structured interuniversity collaborations and networks could and should be very effective in science popularisation – following a model familiar to scientists in their international research activity.

We see the advantages of such European network(s) at least at three different levels:

- a potentially rich exchange of experience between active scientific actors, which share a common culture and social practice in international research;*
- an enhanced motivation for the actors, in particular secondary school and university students, in view of the challenge provided by international operations;*
- an enhanced visibility to the media, the public, the youth, and also the economical and political decision makers.*

The key of the success, however, is in the necessary autonomy left to local initiatives, as well as in a reasonable material support.

We are ready to contribute to any coordinated efforts in this direction.

A. Introduction

As illustrated in this workshop, relations between science and society have known over the last 20 or 30 years contradictory evolutions.

While science and technology exert an increasingly deep influence on all aspects of individual as well as economical, social and cultural life, at the same time the very ambiguities of this development have raised societal and ethical questionings, including reactions of mistrust towards science.

In parallel, the relative number of students attending scientific studies has decreased, compared to those attending studies in economics, social sciences and humanities. This move is especially strong in the “traditional” sciences, related to the “old” industrial sectors (mathematics, physics, chemistry), whereas the number of students has increased in the life sciences, in computing science and in environment related sciences. One should be particularly aware of the fact that this relative decrease is largely due to a failure of scientific programs in attracting women, who now form the majority of university students.

A very large number of initiatives has thus been taken, at different levels, by different actors and with different motivations, to oppose this evolution.

These initiatives are complementary.

Public authorities initiatives

Major actions have been undertaken by public authorities to fight what is considered as a threat for the economic development. They often concentrate on large realisations, like Science Museums, Science Centres, etc. Another example is the popularisation actions which must accompany the very large European Union Framework Programme actions. Such actions usually follow a “top down” logics, and reckon largely on communication professionals which do not belong to the scientific community.

Scientists’ initiatives

On the other hand, scientists themselves have launched a very large number of initiatives in order to react to what they often feel as an unjustified misunderstanding by the public of the very nature of their activity and a lack of recognition of their work.

This move by scientists is often supported by a deep optimistic conviction of the positive role of scientific knowledge on social and human progress, and thus of the democratic dimension of the sharing of knowledge.

More specifically, many scientists consider as a duty to provide citizens with the scientific tools useful to take part to the decision making processes in matters related to science and technology which are going to deeply shape their future. (In a truly democratic approach, a scientific education is of course not a prerequisite to take part to the decision making process, but a scientific background can help the citizens to *dare questioning* the decision makers.)

In addition, it is of course clear that the initiatives launched by scientists are *also* rooted in a concern about the financial support they need for their activities, and by the concern, especially in the more traditional sectors (maths, physics, chemistry) about the number of students and PhD’s in their laboratories.

But one thing at least is common to all initiatives launched directly by scientists: they imply a direct, personal contact with the public. This direct contact is highly appreciated, especially by the youth, and also by the researchers themselves: it is a matter of sharing not only knowledge, but also passion and enthusiasm.

A stress

There seems to exist a stress, a tension, not to say a contradiction, between

- on the one hand, motivations and injunctions of national and European political powers, industrialists and university authorities, who insist on the need to increase the public awareness of science, in view of economic development and competition ;

- and on the other hand, individual motivations of scientists who are willing to devote some of their time to the sharing of science – in spite of the heavy competition in their own field of research – for humanistic and democratic reasons.

This stress is symbolically manifest in the very use of words: politicians or industrialists often use expressions like “*How to attract students to science ?*” (title of a recent E.U. seminar for journalists in Brussels), – whereas scientists insist on the *information* of young people about scientific studies and scientific research.

This stress is also reflected in the contrast between, on the one hand, the call to “communication professionals” to “advertise” science, and on the other hand the importance scientists give to the *direct* contact with the youth and the general public.

Complementarities

These two types of approaches, roughly summarised as “top down” and “bottom up” are truly complementary, and should be considered so.

B. The Scité network of the faculties of Science in French speaking Belgium

After this introduction, let us now present a description of the activities of the Scité network in French speaking Belgium, before turning to some lessons of this experience, and a short presentation of European prospects.

Science diffusion activities in the faculties of Science

Already in the second half of the 90’s, a rather large number of science popularisation activities were developed in the Belgian French speaking faculties of Science.

At the Université Libre de Bruxelles, a “*Science Exhibition*” has existed for many years: on a voluntary basis, second or third year students of all departments of the faculty, under the direction of a professor, prepared experiments and demonstrations which were presented over five half days to secondary school students; this experience has always been felt as providing our students with a very positive experience in science communication. It was enlarged into a large 2-week exhibition in the year 2000, when Brussels was one of the “cultural capitals of Europe”. In addition, the remarkable *Physics Experimentarium*, the Botanic Garden and the Zoology Museum were open to schools and to the general public. And last but not least, “*Young researchers operations*” had been organised, in particular at the occasion of Brussels 2000: groups of secondary school students prepare a research “project” (bibliography, experiment preparation and realisation, public presentation), in close connection and under the supervision of university researchers or professors.

In Louvain-la-Neuve (Université Catholique de Louvain), the unit for science popularisation “*Sciences infuses*” organised every year a full week of activities, mainly taken in charge by professors and researchers, and offered laboratory visits, conferences, practicals in university laboratories, demonstrations, etc, the public being secondary and primary schools students, and the general public over the week-end:.

In Liège, a “Maison de la Science” has existed for several years, with permanent exhibitions and guided tours, again in connection with the very rich aquarium and the botanic garden.

The other two, smaller, faculties of Science (Mons and Namur), had also occasional activities.

The faculties of Science network

On the other hand, in 1999-2000, the public authorities (the Walloon region and the Minister in charge of Science and Education) were concerned by a decrease of the number of students in Science (which is now stopped), and they were searching for actions.

In this context, the deans of the five faculties of Science made two proposals :

- to organise, in the whole French speaking Belgium, a full week and week-end of activities devoted to science popularisation : the “Printemps des Sciences”;
- and to coordinate the actions through a network of the 5 faculties, the *Scité* network – this name being a concatenation and abbreviation of “Science” and “Société”, which clearly indicates its spirit.

This double proposal was approved (again, I skip the details), and in 2001, a material support was obtained, quite modest in absolute value (1 full time per university) but absolutely essential in practice, plus the financing of the advertising of the “Printemps des Sciences” towards the schools, the media and the public.

The “Printemps des Sciences”

From several points of view, the first “Printemps des Sciences” in 2001 was a great success, which has now been pursued and amplified for the last 6 years:

- the total number of visitors, which is now reaching more than 35 000 per year (the total number of French speaking inhabitants in Belgium is 4.5 millions);
- the public diversification, reaching in particular cities away from the three “big” universities, – and even crossing the borders since next year French secondary school students from Lille will participate to the *Student Exhibition* in Brussels;
- the cooperation with technical schools, with young scientist organisations, with research centres and museums;
- inside the universities, new faculties have joint (engineering and bio-engineering, applied medical science, etc.);
- the scale effect in terms of organisation efficiency has permitted a diversification of activities (e.g. numerous practicals in the laboratories);
- and finally a very good support is being offered by the media, with TV presentations, interviews of scientists and students, etc.

The “Printemps des Sciences” is now a well-known yearly event, awaited by school teachers and by journalists.

As said, in 2006, the number of visitors was beyond 35 000, the number of participants (university students, researchers, professor) reached 1000, and the number of activities proposed to the public was as large as 300.

The Scité network also organises several other activities, e.g. the operations *Demain mon entreprise* and *Science au quotidien*, which establish collaborations between secondary schools, universities and enterprises in order to make students aware of the importance of scientific development for everyday life and economic development. Here again, direct, personal contacts between secondary school students and university researchers are very efficient and rewarding.

Pedagogical innovations in universities

In addition, the fact that the “Printemps” has become an “official”, “national” activity has had indirect but important return effects inside the universities.

It has not only implied a recognition of the work of the academics who initiated these activities, but a place has been recognised to science popularisation and communication in the academic agenda:

- at a local level, the success has made it possible to convince the colleagues and the university authorities to create in every Faculty of Science a unit for popularisation of science, and to hire a Dr. in Science or another person to lead it – in Brussels the unit is called “*Inforsciences*”;

- PhD students and young researchers like to mention in their academic curriculum vitae these activities, which tend to be taken seriously by scientific commissions;

- the success of the operations helped including science communication in the academic programme. At the ULB, the BA program of all students in Science now includes of 4 ECTS module (corresponding to 48 hours of lectures, which is not small !) devoted to “research and scientific communication” – of which a canonical example is the participation to the Printemps des Sciences;

- in addition, all Master students have the opportunity to take another 4 ECTS module in science communication, which is compulsory for those who choose the professional training orientation.

These innovations have been facilitated by the longstanding and successful effort in science popularisation, in particular through the Printemps des Sciences.

C. Lessons

Let us now come to some lessons which, we believe, have been essential to this success.

There are mainly three of them, which in our experience are equally important.

1. Autonomy

When the Printemps des Sciences was launched, the Public Authorities which financed the project were wise enough to leave a large autonomy to the organisers, i.e. the faculties of Science, and not try to interfere.

A general framework was indeed fixed from the communication, but the existing local activities were maintained, supported and enhanced, and no attempts were made to uniformise the activities: Brussels maintained and developed the *Student Exhibition*, Louvain maintained their more structured types of visits, Mons was able to present spectacular demonstrations in the middle of the city (e.g. a Foucault pendulum in the cathedral), etc.

This has been crucial, since the traditions, the resources, the local conditions, the experience of the people involved were extremely diverse.

It would have been a disaster – or extremely costly and probably inefficient – to try and impose uniformity.

The first lesson is thus the necessary autonomy, the respect of the local traditions and initiatives, within a common general framework.

2. Material support

The person hired on a permanent position in each Faculty to lead the popularisation of science unit plays a very important role because he / she has:

- to take in charge all organisational aspects and practical organisation, including the relations with the media, with the schools and with the participating scientists; it is clear that, on the long term, such activities cannot possibly be taken in charge by academics alone;

- and he / she has also to mobilise efficiently academics and researchers and find the adequate resources; for this, it is very useful that this person be a scientist, who knows and understands from personal experience how research is organised and what are the constraints and the problems met by the scientists.

In each faculty, 1/2 full time equivalent was in addition financed by the Ministry for the Printemps des Science, which is quite modest but proved essential to help the permanent person.

The second lesson is thus that a minimal material support is necessary, and the presence of this support within a Faculty structure, close to the researchers, is crucial for efficiency since it allows an enormous multiplication of efficiency.

3. Importance of the network

The very existence of the network itself has played an important role.

In practice, the network consists of the head of each unit, plus some contributions from deans and / or academics.

The existence of the network has shown important for:

- relations with the Ministry, the media, the designers of the posters, etc., who interact with an unique body;
- discussions and the exchange of experience;
- the design of new projects, the hunting of new resources, etc.;
- and, in addition to the support of the faculties and the close contact with researchers, the enthusiasm and the stimulation of the members of the various science diffusion units, through common activities and regular meetings.

A very positive and friendly spirit reigns in the Scité network.

D. Towards an international network

Let us now briefly come, in conclusion, to the question of a European network – or networks.

As shown by our experience, the creation of such a network requires a relatively modest, but effective amount of material support – in particular for manpower –, and it should aim at supporting and enhancing local initiatives, in a spirit of complementarities and autonomy.

On this basis, it would be a great progress, and a very efficient tool for the diffusion of science:

- scale effect and impact on the public, the media, the decision makers;
- a wider field for exchange of experience;
- enhanced motivation for the participants, in particular secondary school and university students, due to the challenge provided by the international cooperation;
- common operations could lead to the use of modern information technologies, and also to an exchange of participant students and visits abroad, which should be seen as part of the European mobility efforts (Erasmus etc.);
- and finally it would provide an opportunity to develop new links between universities, which could lead to common programmes or exchanges, e.g. in science communication.

We thus strongly support the efforts « *Verso una rete europea di gruppi universitari di diffusione della cultura scientifica* ».

We warmly thank professor Enrico Predazzi and his collaborators for their initiative and for their invitation in Torino, and we wish full success to the *Agorà Scienza* centre.