# S-TEAM French National Workshop Report

## Inquiry Based Methods within science learning and teaching strategies

### Teacher collaboration, teaching strategies and learning outcomes

## 2009, 20-22 October

## Grenoble


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The report shows that NWS goals are accomplished. Participants are numerous (125) and they are concerned by science teaching and learning through many ways (research, teacher education and training, management, teaching, university studies, political charges). They come from many research teams (16). They are satisfied by the NWS (82%). Through the NWS, they say they acquired knowledge about IBST/L and are planning to improve their own reflection or practices. After the NWS new collaborations between teacher education institutions, local authorities and research team occur.

## 1. What has been done

### 1.1. The young research afternoon: 20 October

It gathers about 50 persons, 35 of them are new mathematics teachers.

After a presentation of S-TEAM project, 2 parallel sessions are organized. Each of them gathers 3 papers by PhD or post-doc students. These papers are very interesting: two of them are about mathematics IBT/L, one about chemistry and 3 papers about teacher's collaboration in scientific subjects.

### 1.2. The main conference: 21 October

It gathers about 90 persons: teacher educators, researchers, students, science teachers, inspectors and some local communities' actors.

The French S-TEAM partners present the project. The local partners which contribute to the NWS founding make explicit why IBST/L is important for their institution. Two lectures are done by two well known researchers: the one about the "IBST/L challenge" and the second about "teacher collaboration".

After lunch, 6 parallel sessions are organized about: IBST/L, teacher collaboration, and research methodology. It gathers 18 papers by researchers and practitioners from all parts of France (Grenoble, Lyon, Marseille, Nantes, Paris, Rennes and so on).

A third lecture, by a national inspector, tackles "European policies to improve scientific learning". The day is closed by the local teacher education institute director.

### 1.3. The institutional morning: 22 October

It gathers about 30 stakeholders: teacher educators, researchers, inspectors and some local communities' actors.

The discussions are supported by the WP2&3 questionnaire.

The S-TEAM partners present their laboratories competencies about IBST/L and their specific contribution to the project. Then Mathias Stadler presents the Sinus-Transfer project.

Three successive round tables offer the opportunity to the participants to present their institution point of view about IBS/T and about teacher education and training. They gather inspectors (regional and national), politicians (local and national) and local researchers.

## 2. What had been said

All participants make explicit their will and the will of their institution to improve scientific teaching practices and learning outcomes. All want to enhance teacher collaboration. But it appears that these kinds of goals are not recent within the educational system. Thus, new conceptual and methodological frameworks need to be elaborated in order to accomplish the current goals. Some of them already exist and the S-TEAM role is to disseminate their use.

With respect of IBST/L, it could be important to analyse teaching strategies with a tridimensional model which could involve: knowledge, skills and experience towards scientific topics. Furthermore, a consensus conference about IBST/L definition and effects is needed. It will be also crucial to discuss the linkage made by European policies and reports between the lack of students' motivation for scientific careers and the teaching strategies: such causality seems very difficult to prove for many social, financial and cultural factors could be more effective than pedagogical ones.

With respect of teacher collaboration, it could be effective to develop interactions about very specific professional matters as: pupils collaborative work, scientific learning outcomes assessment, lesson studies, etc. In France, each local authority supports professors' teams through CPD programs which seem to tackle these questions. This organisation seems effective but it is difficult to figure out for it is very local.

With respect of national and European policies, it appears a need for: a consensus about IBST specification in order to find a way through which teachers and inspectors could agree about standards which specify IBST; a reflection about the linkage between knowledge transmission and IBST/L; an improvement of formative assessment in science subjects. Some stakeholders note that policies priorities are always changing, thus it could be difficult to provide teachers team with on-going supports. Local communities offer opportunities to improve scientific learning outcomes: for example, in Grenoble, a project of scientific high school which could be dedicated to pupils from social and cultural disadvantageous sectors; and also specific supports for students from vocational high school who want to reach the university.

With respect of the French context, teacher education is challenging and most of participants hope that actual science teacher educator's competencies could not disappear through the current reform process.

## 3. The participants

The 123 who are registered come from 16 research teams. Overall, some people from Grenoble attend to the meeting without registration.

The registered participants are:

| 123 | Total |
|---|---|
| 35 | new teachers |
| 13 | students |
| 9 | teachers |
| 27 | teacher educators |
| 10 | inspectors |
| 26 | academics (researcher, associated professor, professor, etc.) |
| 3 | local community actors |

## 4. After the NWS

An on-line satisfaction questionnaire is proposed one month after the NWS.

31% of the registered participants answered the questionnaire.

82% are satisfied or very satisfied by the NWS.

They appreciate: the information about S-TEAM (68%) and the lecture and presentation contents (63%).

They say that, through the NWS, they learnt about teacher collaboration (68%) and about national and international policies toward science education (53%).

They plan to extend their reflection about IBST/L (82%), to contribute to improve CPD about IBST (82%) and to reinforce collective practices amongst teachers (80%).

They wish that the NWS leaders implement on a website the lecture videos (89%), coordinate a book gathering the most interesting papers (76%) and resume this kind of meeting next year (58%). The first will could be done rapidly, the second seems realistic, but nothing is already decided for the next year!