

Italian National Workshop on the impact and dissemination of projects

The first Italian national workshop on the impact and dissemination of science education research and development programmes was held in Naples on December 12, 2013.

Researchers in science education, expert teachers - some of whom involved in numerous national and international research and development projects - a museum practitioner and a school principal were involved. Some of the teachers are involved at various levels in the school and science department management. Two of the teachers are long-term members of teachers and educators associations (National Science Teacher Association and Educational Cooperation Movement). Many of the participants have been involved in inservice training, both as learners and educators. A detailed list of participants is presented below.

Participants

Francesco Cuomo	Researcher science education
Bruno Fabbrocino	Secondary school teacher
Guido Di Lorenzo	Secondary school teacher
Emilio Balzano	Researcher science education
Olga Mautone	Primary school teacher
Colomba Punzo	Principal - Primary school
Anna Merinio	Researcher science education
Giovanna Mendella	Secondary school teacher
Franco Di Liberto	Researcher physics and science education
Rossella Parente	Education section – Science Centre Città della Scienza
Giulia Forni	Secondary school teacher - Fibonacci project
Marco Serpico	Researcher science education
Ciro Minichini	Researcher science education
Marco Marino	Upper secondary school teacher

Participants identified some of the issues connected to the impact of research and development programmes on school practice in the short and long term.

They referred to programmes related to European projects, national and regional programmes linked to EU funding (e.g. PON: National Operational Programmes, which are funded through EU Structural and Cohesion Funds) and to R&D programmes in general.

The main emerging issue is a lack of coherence and coordination in the various programmes. Practitioners have the feeling that one often starts from scratch in every novel programme and that there is no 'history' of the work done. In other words, the work done does not remain as a lively patrimony of the school or group of teachers involved in the original programme. This does not enable practitioners to build upon work done and progress and represent a significant waste of resources.

Another problem is that programmes are seldom evaluated against their impact in terms of change in teachers practice and students' learning. This puts all existing initiatives on the same level and leads to a process of bureaucratisation in the distribution of funds and the acknowledgement of good practice. This also prevents from being able to provide incentives for teachers that are 'doing a good job.' It also allows for ordinary, not effective practice to be preserved.

Participants agreed that it is necessary to establish organs of control, evaluation and support and that the school should not be left alone with the responsibility of good education. In particular, there was consensus that the university (researchers in science education) should be involved in the system of teachers' continuous professional development and the organization of research and development programmes. The existence of such organs could also guarantee coherence among programmes and provide research-based support.

More in general, there was broad agreement about the fact that teaching is a reflective profession and that the work done in the classroom should be seen as one part of a more complex set of activities. In order for teachers to develop in their profession, exchange with external experts (which also includes colleagues) is crucial. As some participants noted, indeed, the great majority of teachers think that they are doing their job excellently and they might just as well keep thinking so for their whole career if their activity is limited to working 'behind a closed door' with their students only.

For what regards the implementation of programmes in particular, participants agreed that working at two levels is crucial. These involve a level at which teachers work with the external experts in the classroom - that is, a real-life educational context - and a level at which teachers and external experts work without students and discuss and reflect about the real-life issues emerging from the classroom context. The model of action-research was referred to as very effective.

An important point seemed to be that the problem of effective school education should be approached in its complexity. Promoting Inquiry-Based methods *per se* might be meaningless if other significant factors are not taken into account. For example, working with groups of students from different classes or without involving all the teachers of the participating classes might result in very limited impact beyond the implementation of the programme. These actions might leave no trace in the school practice after the end of the programme.

Some participants pointed out that another issue is the connection between everyday practice in the classroom and the policy makers and other institutional figures with decisional power. They said that often these figures are not aware of good practice and effective projects that take place 'behind closed doors' in the classrooms and that in many cases they are not even competent in educational matters. There exists the need of upstream communication from the school to the institutional level. This could be mediated by representative boards. Also for what regards actions related to EU projects a closer relation with representatives of the institutions (e.g. Ministry) at the national level is needed. The teacher involved in Fibonacci referred to the example of *La main à la pâte* as good practice with regards to this issue.

Participants broadly agreed that in order to have a serious impact systemic actions are needed that involve teacher in-service training, promoting sharing and discussion of the implemented programmes, enhanced cooperation between teachers within the school and networks of school, a stronger link between school and experts from university (researchers in education) and other providers of education.

One of the measures proposed for enhancing the impact at a systemic level is a better exploitation of existing resources. A broad spectrum of expertise exists within teachers in service: educational, artistic, technical, relational, cultural etc. Strategies should be developed in order to identify, acknowledge and organise these experts in order to make the best of their competencies and make them available to support colleagues in their school and in networks of schools. Again, it seems that a mediating organ is necessary (e.g. a resource centre). These organs should probably be established on a regional level.

For some participants, the issue of the relationship between the school and the local community seemed to play an important role in terms of the impact of the actions. Bringing the work done at school outside to the local community (e.g. with exhibitions or science fairs etc.) enhances students' and teachers' motivation and establish a dialogue with the outside that promotes questioning consolidated teaching practice.

One last focus of the discussion was about the role that students' needs, interests and inclinations should have in the teaching/learning process. In particular, the finding from the Instem state-of-the-art report was presented according to which, the voice of students is absent from most research and development projects.

While there seemed to be agreement that it is important to listen to students thoughts, the question of how to make the best of it remained unanswered. What should the teacher do if the students say 'I don't like doing homework' or 'This part of the lesson is boring' or 'That activity was fun'? Participants questioned if for an activity to be 'fun' or 'interesting' for the students is a measure of how 'good' and/or effective that activity is. Some participants pointed out that some of the activities that actually produce long-term learning might as well be those that are the most exhausting and unpleasant.



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The project INSTEM has received funding from the European Union LIFELONG LEARNING Programme (20122015) under Grant Agreement n° 2012 -4827 / 001 - 001. The report only reflects the author's - the INSTEM consortium - views. The European Union is not liable for any use made of the information contained herein.

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