

# Work package 4 Teacher Collaboration and innovative methods

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The objectives of WP4 are:

to use existing empirical research on teachers' collective work as a basis for the systematic deployment of teacher collaboration in support of innovative methods in science teaching.

Description of work WP 4 is led by Universite Pierre Mendes-France (UPMF), WP4 is concerned with the role of teacher collaboration in the deployment of innovative methods, promotion of equity and working with diversity in science teaching. WP4 is about enhancing teacher collaboration and collective work, since inquiry-based methods introduce student cooperation, collaborative activities and uncertainty into classroom environments and teacher practices. Teachers need to work together to overcome this uncertainty and to develop new skills and practices. It is also important for teachers to collaborate in order to address issues of diversity and gender in the classroom, which have been identified as constraints on pupil attitudes to scientific literacy and science careers. Finally, projects such as SINUS have already succeeded on the basis of teacher collaboration, so there is an evidence base and a strong argument to pursue actions which encourage and support collaborative working. UPMF will liaise with IPN in WP3 regarding the collaborative aspects of SINUS. WP4 will promote the role of teacher collaboration and collective work<sup>15</sup> in implementing science education reform through teacher education. The four partners within WP4 all have proven expertise in teacher collaboration and will hold a thematic WP meeting within the start-up conference. Drawing on its proven expertise and existing theoretical frameworks, Universite Pierre Mendes-France (UPMF) as WP4 leader will work with UHB, CYCO (in WP6) and UnivStrath to produce models for the implementation of collaborative approaches, using video-aided reflection and other innovative methods.

**Sub packages**

WP4a Dissemination strategy for inquiry-based methods in France As national liaison partner, UPMF will lead the production of a dissemination strategy for France, in cooperation with CNRS and UHB. This is necessary to enable large-scale dissemination within the French teacher education system which is currently transforming towards a model compatible with other European countries. In France, science teacher education is currently in transition from a quasi-centralized system (i.e. Institut Universitaires de Formation des Maitres - IUFM) to a distributed organization involving numerous universities. This situation requires a renewed articulation between teacher educators, schools and local authorities. Such a situation provides good opportunities for the dissemination of new practices amongst the actors of the science education system. Contacts have been established with other research teams (e.g. Sciences Techniques Education Formation STEF-ENS-Cachan) or institutions (e.g. Institut National de Recherche Pédagogique - INRP) which are well known for the efficacy of their dissemination strategies. A French group start-up conference is planned for M2 in Grenoble; pre-existing conferences will be used in M12 and M24 for dissemination in specific areas, (e.g. mathematics, biology, etc.) and in M33 a final French national meeting will be held. The subpackage will consist of a report which will be provided for M12. (product 4.1)

WP4b: Teacher Collaboration guidelines: workbook for professional development programmes A workbook is planned for M12. It aims to support collective reflection during workshops about the ways in which teacher collaboration could reinforce IBST, encourage positive consideration of learner's diversity and enhance pupils' learning outcomes (scientific knowledge, motivation, self-esteem, metacognition). A specific chapter will tackle teacher engagement/commitment and its effects on teaching approaches and practices. (product 4.2)

WP4d: Report on IBST and the Pairform@nce project: creating training paths Pairform@nce is a national teacher training project in France. It proposes training packages (called training paths), providing resources for the organization of blended teachers training sessions, using a distant platform. The training follows a principle of collective elaboration of lessons, which permits the emergence of teachers' communities, sharing a repertoire of resources (Gueudet & Trouche 2008, Gueudet 2008). The implementation by the teachers of collectively designed lessons permits the development of innovative teaching practices. In this report we present the Pairform@nce project through an analysis of two IBSooriented training paths. The first one, called "Inquiry in mathematics with dynamic

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