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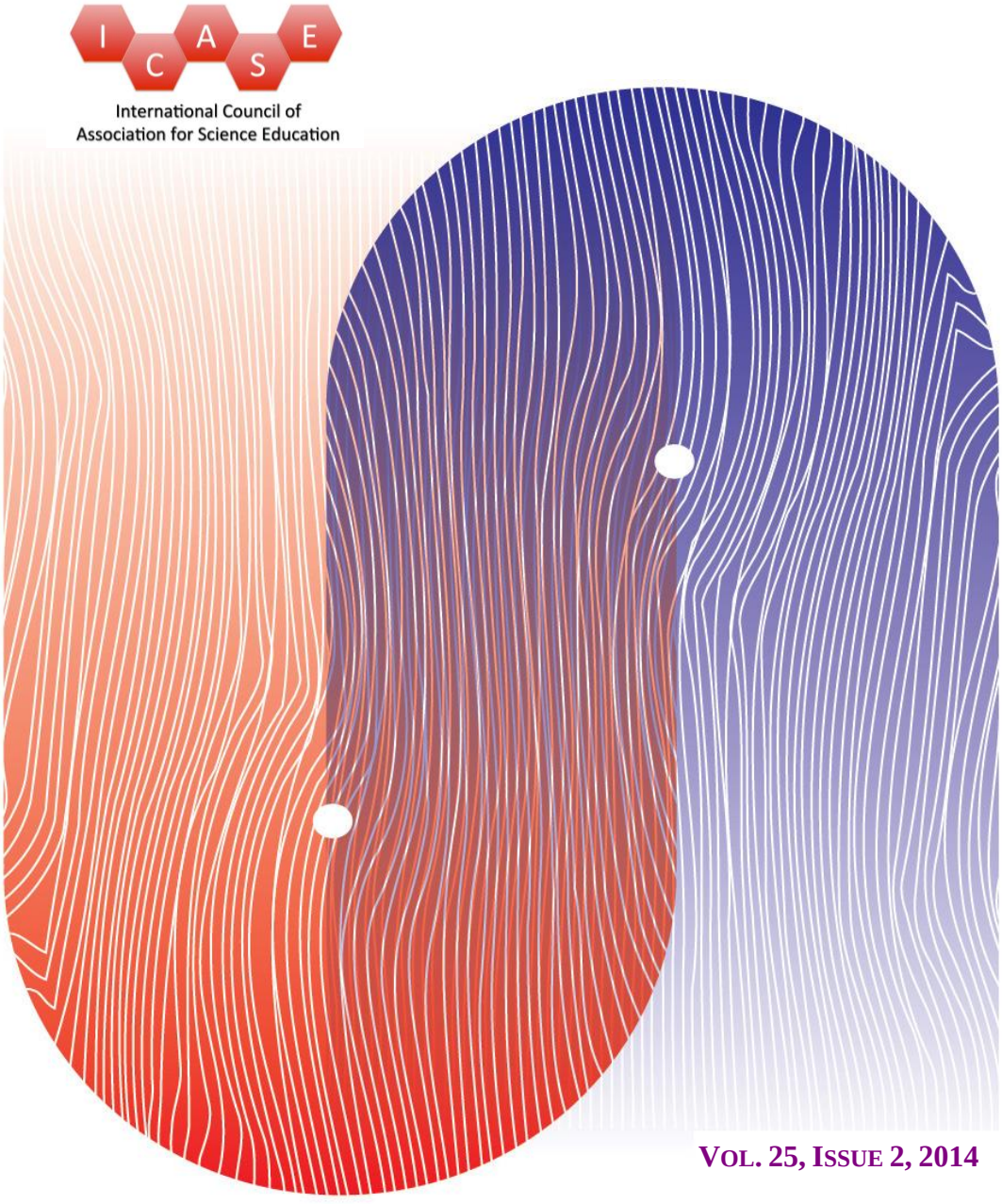

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Editorial

J. HOLBROOK*

This special issue focuses on developments within an FP7 EC project, PROFILES (2010), which tries, in line with current developments, to go beyond seeing science teaching as simply a base for further learning in content and scientific concepts. Although teachers around the world see themselves identified by their teaching subject, often as a sub-division of science (biology, chemistry, physics), this project tries to widen the horizons of student learning and seeks to guide teachers to recognise the need for students to learn beyond the subject content. In this sense, this special issue is a follow-up to a special issue on a prior FP6 project called PARSEL (Holbrook, 2008).

The focus of PROFILES is definitely education, or education through the medium of science. Both the terms 'IL' and 'ES' are purposely included in the acronym. The 'IL' is included in recognition that PROFILES sees a constructivist approach to science teaching, in which student-centred approaches are heavily encouraged and the science conceptual learning builds on prior knowledge. The emphasis on inquiry-based learning (as opposed to inquiry–based teaching) draws attention to the wider, more creative and innovative learning expected beyond simply obtaining a solution to a problem. The 'ES' can be seen as even more important, putting forward a science education philosophy and drawing together both competence-based learning, in which the key competences derive from EC documents (Eurydice 2002, 2012) and a context-based approach, through which PROFILES strives to establish relevance in the eyes of students and also through this, promote student's personal and social abilities relate to employability and responsible citizenship.

Two books have been published by the project partners. The first "Inquiry-based Science Education in Europe: Reflections from the PROFILES Project" (www.profiles-project.eu) and via: http://ius.uni-klu.ac.at/misc/profiles/articles/view/31), sets out to put forward project ideas. It identifies the ultimate PROFILES target as raising teacher's self-efficacy, enabling teachers to seek evidence of ownership of the

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PROFILES philosophy and developing approaches for the purpose of enhance students' scientific literacy.

A second book, being produced on case studies by the various partners, is divided into four sections ostensibly oriented towards the professional development provision (CPD), the teaching (use of STL-oriented modules), Delphi study outcomes (soliciting stakeholder views) and networking (promoting teacher interactions).

This special issue reflects on:

1. Teacher CPD needs to promote the education through science philosophy.

The article introduces 10 areas of potential teacher CPD needs, based on the vision for science teaching to promote education through science; operational skills for science teachers in promoting key competences for all students and background required by science teachers in teaching to promote STL. Based on this it then identifies teacher needs and sets out to create an appropriate and meaningful CPD course.

2. Finnish Science Teachers' Views on the Three Stage Model

PROFILES has established an operational 3 Stage Model, designed to promote intrinsic motivation from a familiar setting before introducing an inquiry-based learning environment and then using the science learning to make decision about contextual, socio-scientific issues as the third stage. Acknowledging the teacher's voice is a crucial factor for adapting any professional development towards teachers' ownership of new developments. This article reflects on teacher views.

3. Developing in-service science teachers' ownership of the PROFILES pedagogical framework through a technology-supported participatory design approach to professional development

This paper discusses participatory design as a bottom-up approach for promoting teachers' sense of ownership of inquiry-based learning and teaching. According to the prevalent arguments in favour of participatory design, this approach leads to designs that are ecologically valid and attuned to different stakeholder needs. These findings suggest that technologically-mediated participatory design is a valid approach for promoting teacher ownership of the PROFILES approach in science teaching.

4. The PROFILES project Promoting Science Teaching in a Foreign Language

This article illustrates how the PROFILES approach can realise greater potential for student language development. The approach, based

on the 3 stage model, is via a scenario providing a familiar setting for the learning and, following experimentation, the approach moves to decision making. The latter involves the use of argumentation skills in a socio-scientific setting, allowing practice in a second language in a different dimension to that of providing scientific explanations.

5. PROFILES Networks: Three International Examples

This paper gives a theoretical and practical approach of PROFILES networking, including examples from Austria, Latvia and Romania. Evaluative findings show that networks offer goal-oriented exchange processes among teachers which support the professional development of teachers. Networking has the potential to create a culture of trust supporting teacher self-efficacy and enabling an environment for teachers to seek evidence of their ownership of the PROFILES philosophy and approach, adapted to the local situation. Hence, networking is seen as playing a significant role in the promotion of science education through PROFILES in the project countries.

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