Newsletter

12/2024

Creating Organisational Structures for Meaningful science education through Open Schooling for all

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Final Conference Recap

- Christine Knippels

We are thrilled to share the highlights of the Final Conference of the COSMOS project, which took place in Utrecht this past November and was a resounding success! The event brought together approximately 100 participants from diverse countries and backgrounds, including educational researchers, policymakers, and practitioners, all united by a common goal: advancing open schooling in science education.

In COSMOS we initiate open schooling by connecting science education to communities. We worked with primary and secondary schools to make science more meaningful for their students by showing how science is a real part of their lives. Students learnt to ask questions about socio-scientific issues around them, create meaning through inquiry and collectively find ways to engage in their society as active citizens (SSIBL-CoP).

We shared the results of the three years of collaboration in the project, with inspirational hands-on workshops and round table discussions for teachers, school leaders, educational researchers and policymakers. It was a great opportunity to learn more about COSMOS' pedagogy (SSIBL-CoP) and framework for Open Schooling in science education, and to gain insight into the school projects and their experiences with the COSMOS approach. We were particularly pleased to welcome numerous teachers, who play a crucial role in implementing innovative educational practices in the classroom.

Participants expressed that the conference was not only informative but truly inspirational. The chance to share experiences, best practices, and emerging research created a vibrant atmosphere of collaboration and enthusiasm. Attendees remarked on the valuable insights gained from engaging discussions, which highlighted the importance of socio-scientific inquiry-based learning (SSIBL) as a means to enhance students' scientific understanding and foster a lifelong love for science.

The positive feedback received has reinforced our belief in the power of open schooling and the community engaged socio-scientific inquiry-based approach. It has also illustrated how vital it is for stakeholders from various sectors to come together, share knowledge, and learn from one another. The networking opportunities were plentiful, allowing participants to forge meaningful connections that we hope will continue to flourish beyond the conference.

As we reflect on the achievements of the COSMOS project, we remain committed to supporting the ongoing dialogue and collaboration sparked at the conference. We invite all stakeholders to stay engaged and continue the momentum we've built. Together, we can make significant strides in transforming science education for the better.

Thank you to everyone who participated, contributed, and made the final conference in Utrecht such a remarkable event. Your dedication and passion for community engaged socio-scientific inquiry-based learning are what will drive the future of education. We look forward to seeing how we can collectively further the goals of COSMOS in the coming years!

Teacher professional development on open schooling in science education – the COSMOS project

- Daphne Goldman

As the three-year COSMOS project on open schooling in science education comes to its end, this offers a nice opportunity to recap one of the key components of this project –Teacher Professional Development (TPD). The aim of TPD within this project was to empower teachers as *change agents* in realizing educational reform in terms of open schooling and its application in the context of science education. Capacity building of teachers in COSMOS targeted developing the teachers' competencies for implementing socio-scientific inquiry-based learning (SSIBL) within communities of practice (CoP), honing their capacities as reflective practitioners and cultivating their professional identity regarding open schooling and learning in and as a community. Achieving this aim entailed developing a deep understanding of what it means to learn in and as a community and how to employ SSIBL as the pedagogical framework for developing, in CoPs, learning units for science classes around relevant socio-scientific issues. Together, these comprise the COSMOS open schooling approach.

A model was developed for guiding a progressive process of TPD, organizing the PD process around three conceptual components – the COSMOs approach to learning in/as a community, conducting SSIBL pedagogy within a CoP, and meaningful reflection of the process.

COSMOS TPD envisions teachers learning as professional learning communities in which learning targets not only development at the level of the individual teacher, but also learning for organizational change – changing the culture of how the school

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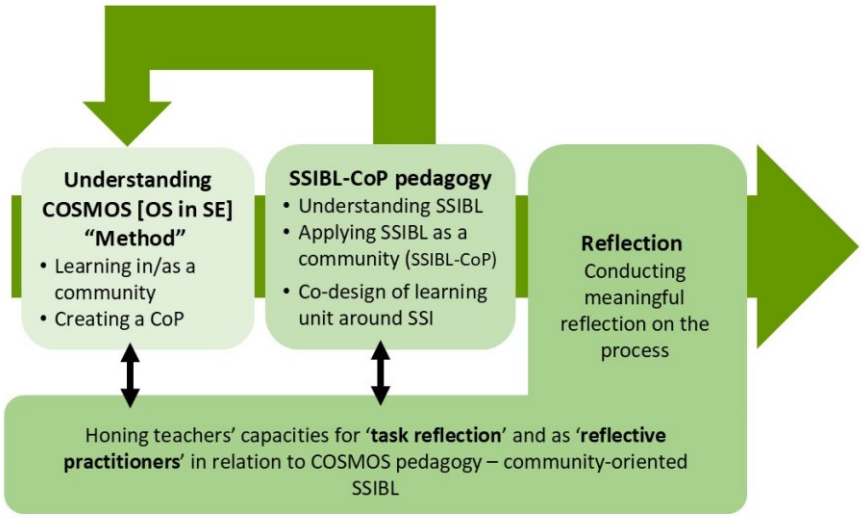


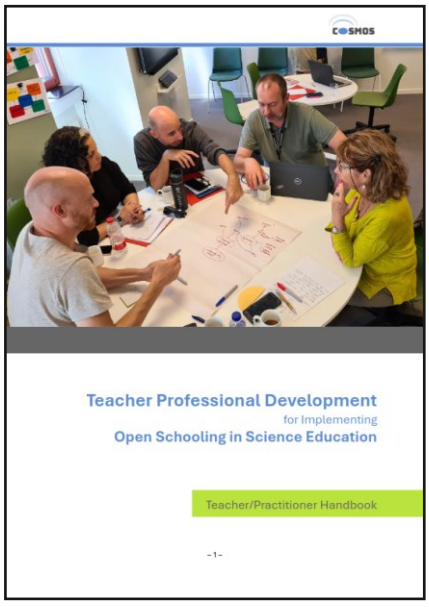
approaches its teaching. This process of collective-collaborative learning, which lies at the heart of professional learning communities, is one aspect of changing school organizational structures and culture to promote open schooling.

One of the central principles of TPD in COSMOS is *flexibility* and *adaptability*, expressing the understanding that the process of professional development for open schooling in science education is not "one size fits all" but needs to be context sensitive- to the specific attributes and needs of the participating teachers and of the school, as well as the national and school curriculum. Thus, while TPD is a structured process, it employs a flexible and adaptive approach to enhance the effectiveness of the process in different educational settings and circumstances. Another attribute of the COSMOS TPD process is *emergence* – enabling the teachers and members of the CoP to be actively involved in constructing the TPD process, contributing content and activities based on their experience.

Professional development during the COSMOS project included two international TPD workshops for the participating teachers from the six countries involved in the project. The first intensive two-day workshop was conducted after the first year of implementing COSMOS, in the aim of critically reflecting on how TPD played out in the different school contexts and obtaining insights for refining the TPD process. The teachers emphasized that this international teacher workshop was a pivotal moment in their professional development as it provided an opportunity to connect and collaborate with colleagues, to share experiences and learn from peers, from different school teams in the same country and from the different countries. The second TPD workshop was conducted during the final international conference, just recently held in Utrecht. In this culminating workshop the teachers reflected on how their experience in the COSMOS project has influenced their professional identity regarding the open schooling approach in relation to science education but also as a broader educational approach to schooling. The focus on learning as a community and open schooling has helped the teachers see themselves as facilitators of community-based learning.

> **"The professional development as a result of being involved in the COSMOS project goes beyond the skills developed for the implementation of the project" (n.d)**

One of the products of the COSMOS project is a TPD handbook. The handbook presents the major concepts and theoretical framework underlying the COSMOS approach, provides a structured but flexible framework of practical guidelines and activities for developing teachers' capacities to implement this approach. Additionally, the handbook offers evidence-based practical considerations for adapting TPD to different educational circumstances. Finally, the handbook looks at key



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success factors for TPD, pointing out opportunities that the process creates for the teachers and the schools. This section opens a window to the "teachers' voice" with quotes provided by teachers' communication their personal reflections on how their experience in this project has influenced them.

This handbook is open for public use, and we invite educational practitioners who would like to learn more and consider engaging in a change process in the pedagogy guiding their school to take advantage of this educator resource.

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