

## PAPER 2

## Socio-scientific inquiry in pre-service education: Challenges and opportunities

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Socio-Scientific Inquiry-Based Learning (SSIBL) is a pedagogy which connects the study of socio-scientific issues (SSIs) with inquiry-based learning (IBL) and citizenship education (CE; Levinson, 2014). This paper features a training program in which pre-service biology teachers (PSTs) collaborate in designing and reflecting on SSIBL learning and teaching activities. It addresses how PSTs valued the SSIBL-pedagogy and what challenges and opportunities they foresee. Within the context of a 20-week pre-service teacher course, two cohorts of biology PSTs ( $n=27$ ) were involved in training on SSIBL, consisting of two 1,5 hour face-to-face meetings and the development of a design for a SSIBL-lesson in groups of 3 or 4 PSTs. Qualitative methods were used to evaluate the SSIBL framework as experienced by the PSTs and consisted of classroom observations, collection of lesson designs and a questionnaire.

The results indicate that the SSIBL-training enabled PSTs to bring socio-scientific controversies to their classroom practice and to engage students in personal decision-making. Integrating social and scientific inquiry proved to be more difficult as it was mainly translated in an inquiry to generate more factual knowledge to be able to check the different claims by stakeholders. However, PSTs considered the SSIBL-approach to be of added value to biology lessons in general and to their own teaching repertoire in particular. The main obstacles mentioned by the PSTs for implementing SSIBL in biology education is the time consuming nature both in designing these activities as in the time needed for social and ethical inquiry in classroom practice. Moreover, they considered SSIBL difficult to manage due to its open and deliberative character, and they experienced inflexibility at their training school since it not matched the school planning. So, more effort is needed to support PSTs in guiding an open-ended inquiry in classroom practice. The training activities are being adapted at this moment and implemented in a next course for student biology teachers.