Place-based learning on climate and energy in the climate smart classroom

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Introduction

This study is part of an interregional collaboration between Copenhagen University, Malmö University, Technical University of Denmark (DTU) and the Municipality of Höje Taastrup within the Smart City Accelerator Project (SCA) 2016-2019.

SCA works for a fossil-free future and for creating smart cities in the Öresund region. The project also focuses on education and includes students in new green solutions, as they are the energy users of the future.

More than 100 classrooms located in three different elementary schools in Höje Taastrup were equipped with wireless sensors by DTU in 2017 (Fig. 1). The sensors are collecting data on air temperature, air relative humidity, CO₂-concentration and noise level every 5 minutes.

Fig. 1. Position of wireless sensors in one of the school buildings.

The climate data is available to the schools via a virtual platform since spring 2018 (Fig. 2). During the spring semester, teachers at one of the schools introduced the climate data in their education.

Fig. 2. The virtual platform, Skoleklima.dk, offers teachers and learners the opportunity to visualize their classroom’s data, here CO₂-concentration.

Research question

How are teachers in an elementary school reflecting on challenges and possibilities regarding pedagogical development, using indoor climate data on air temperature, relative air humidity and CO₂-concentration in classroom education?

Method

Three science teachers at one of the schools, teachers in grades 0-3, 4-6 and 7-9 respectively, were interviewed in a focus group in June 2017. The teacher responsible for science and technology education in grade 4-6, was interviewed in May 2018. Both interviews consisted of semi-structured questions and were carried through with assistance of an educational consultant in Höje Taastrup.

Results

• The teachers are focusing on possibilities when reflecting on challenges and possibilities regarding use of climate data available at the virtual platform.

• The education at the school is student centered and project oriented. The teacher in grade 4-6 reflects on how to facilitate learning activities, like experiments with different degrees of freedom, in her classes.

• The teachers find the partners from DTU very helpful with technical assistance and in explaining the climate data presented at the platform.

• The teachers are looking forward to future work with series of climate data as well as in real time together with the learners.

Discussion

Only one of the three schools are involved in the project today.

At the involved school, teachers are mainly focusing on the possibilities. However, more challenges might appear as they develop new learning activities in connection to the climate data.

In September 2018 the school will break the regular schedule and focus on energy and sustainability during two weeks. The study will continue with focus on constructive alignment and learning outcomes of the project weeks.

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