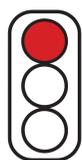


An interactive and playful air quality sensor as an alternative approach to foster students' awareness of bad air quality exposure

Elia Hvalič, Felix Walcher

Available air quality gadgets most often use sound or light signals to convey information. Particularly, the "traffic light"-system is prevalent, i.e., a red light indicates bad air quality and green indicates good.



This way of signaling induces a very passive action, e.g. opening the window, on the users and trigger little incentive to understand and question the current air composition.

Carbondioxide has proven to be a good measure for indoor air quality as we found it to correlate well with other relevant particles, such as volatile organic compounds (VOCs, see figure 1). It has furthermore been established by numerous authors including Myhrvold et al. that high CO₂ contents in air reduce the ability to concentrate to those that are exposed and increase fatigue and headaches symptoms¹.

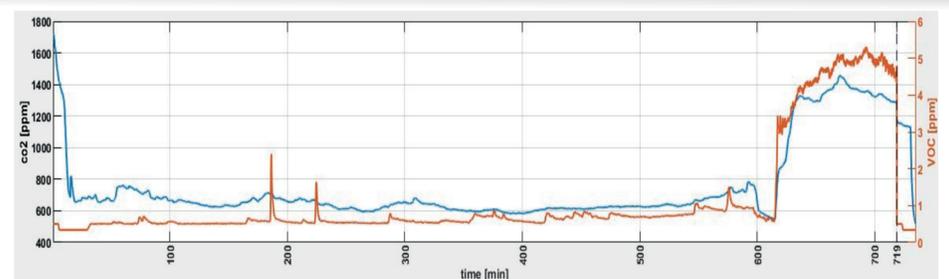
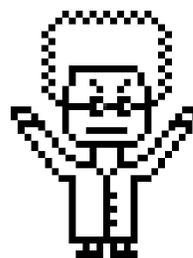


Figure 1: Simultaneous measurements of CO₂ and volatile organic compound (VOC) concentration in a ventilated room over several hours. Both substances show a similar course supporting the assumption of strong correlation. This experiment carries the proposition of using the CO₂ concentration as an overall air quality indicator.

Our approach with the air lab is playful: a mobile lab station where measurements can be performed and analyzed. On the go, the mascot is giving useful advice, produces fun facts on air quality or reflects the current values by stating that, e.g.,



"I can't concentrate!"



The device aims to improve awareness on air quality and promote a discussion, that has a sustainable effect on users. It will be given to Swiss schools as a batch of 30 samples for students to learn about air quality; accentuated and integrated into the project luftlabor.ch that was launched by the Federal Department of Environment (BAFU).

[1] A. N. Myhrvold, E. Olsen, O. Lauridsen, Indoor Air '96, proceedings of the 7th International Conference on Indoor Air Quality and Climate, 1996, Nagoya, Japan, 4, 369-374.