

Project's title:

How does multisensory virtual experience impact environmental behaviour?

Virtual Air Pollution Experience (VAPE)

Air pollution is a serious threat to public health. The main source of the problem are cars and heating habits. Using coal and trash for heating, as well as wood in a fireplace for pleasure, leads to exceeding quickly the daily norms of air pollution. Even though the harmfulness of air pollution and its relationships with our daily behaviour is commonly known, the problem persists. **But what if we could see, touch, and hear pollution?** Would that encourage us to change our behaviour and improve our health? Our team, using virtual reality and cooperating with local communities, will investigate how multisensory experience of air pollution influences the air quality in Poland and Norway.

The project goal

The project aims to understand how multisensory virtual experience impacts real environmental behaviours. Virtual reality (VR) is a simulated experience that can reflect the real world but it can also enrich it with elements exceeding reality. We can experience VR through both head mounted displays and ordinary smartphones. The latter also allow to experience virtual environments in the form of augmented reality, where virtual elements are overlaid on the real world. For now, virtual environments provide mainly visual and auditory experience. Nevertheless, new multisensory solutions and products are being developed and implemented. Air pollution can be detected by our bodies only when it reached dangerously high level. But polluted air is dangerous for us much before we can smell and see it. The aim of the study is to investigate the influence of multisensory air pollution experience on actual human behaviour. In our analyses, we will take into consideration also economic and socio-cultural factors to understand better what influences the air quality in small Polish and Norwegian towns.

Description of research

VAPE is a transdisciplinary project in which we link a multisensory experience in VR, real-time air pollution measurement, economic and psychological analysis, and civil engagement. We plant to build a network of low-cost air quality sensors in selected cities in Poland and Norway. We will use the data recorded by us to build a multi-sensory virtual experience. We will observe how this VR experience will affect attitudes and readiness for pro-ecological behaviour among the residents of selected towns.. Moreover, we will involve local community and artists in creating these experiences. In laboratory experiments, we will test how multisensory virtual experience of air pollution affects us on a neuronal, physiological, and behavioural level to further increase the effectiveness of our field operations. Finally, we will use the economic theory of decision making and experimental economics to see how we can scale up the solution.

Substantial results expected

We expect that the basic benefit of the project will be a change in behavior and increased social engagement in solving the problem of clean air. The scientific benefit lies mostly in the understanding of the mechanism behind this change, in particular the usefulness of multisensory VR and participatory activities. We hope to develop a solution that can be transferred to the scale of the country, Europe and the world.