

## ABSTRACT

Transport plans have contributed to unsustainable transport, which negatively impacts the environment, people's health, and social relations. Priorities for transport planners have been to solve the 'problem' of car traffic by reducing travel time, speeding up traffic, and constructing large-scale transport projects. This planning approach has allowed people to travel further by car but have also reduced the number of trips by foot, bicycle, and public transport. Sustainable transport can help reduce the impacts of transport by reducing the number and length of trips; shifting modes from private and motorized forms of transport to public, active and/or electric modes; as well as by increasing efficiency in the transport system.

Transport planning and transport research can help overcome the problems caused by unsustainable transport. Transport researchers challenge and provide alternatives to the conventional planning approach, alternatives which are required for sustainable transport planning. Nevertheless, there is dissonance between the knowledge and action on sustainable mobility. This implementation gap is partly caused by top-down, expert-led, and politicised transport planning, in which little attention has been paid to involving the public. However, the radical change from unsustainable to sustainable transport requires the public's support, which is why public participation has become an essential element of sustainable mobility. This thesis therefore investigates four ways in which citizens can be involved in mobility planning and mobility research: through co-creation; using citizen science; by developing participatory mobility scenarios; and by conducting participatory ex-ante evaluation.

Based on a review of projects and papers, the novelty of co-creation can be put into question, as its attributed impacts are similar to those of public participation. Co-creation can therefore be defined as a form of public participation in which creative methods are used, innovation is emphasised, and which is situated on the highest rungs of Arnstein's (1969) ladder of participation. Citizen science allows researchers and planners to collect transport data at a larger scale and at lower costs compared to traditional data collection methods. The application of an evaluation framework to cycling data collected by citizens shows that evaluation can increase the quality of and the trust in citizen science data.

Scenarios can help transport planning overcome uncertainty and prepare for a variety of futures. The application of participatory scenario building in a Belgian village showed that the disrupted mobility scenarios for 2050 were very similar to the residents' vision: a green and tranquil village with shops and services where inhabitants can walk and cycle. Participatory evaluation allows citizens and stakeholder to also be involved in the transport planning process after problem identification and design of solutions. The involvement of citizens in the evaluation of co-designed solutions for traffic safety in Brussels, Belgium, was found to have an overall positive impact on the co-creation process, and vice versa.

Public participation in transport planning and transport research will not magically solve all of today's challenges. Nevertheless, involving the public in transport planning and transport research can improve the quality of transport plans and transport research. As the transport plans of the past that contributed to today's problems were largely developed without the input of citizens, citizens have the right to help design the solutions of the future.