Developing sustainable urban mobility proposals from a multidimensional perspective

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Abstract

Universities play a crucial role in promoting sustainable development. This abstract outlines an 18-month inter-institutional research project approved in 2022 by the Inter-America Organization for Higher Education, which aims to apply the United Nations' Sustainable Development Goals (SDGs). The research team is diverse and comprised of 25 members, including teachers, researchers, and students from Universidad Nacional del Sur (Argentina), Universidade Federal do Rio Grande do Sul (Brazil), the UNESCO Chair in Knowledge Societies and Digital Governance, and Municipality of Bahía Blanca city.

There is currently growing concern about pollution, and daily traffic problems in cities are driving the development of new trends in mobility. The study of urban mobility is relevant from the perspective of sustainable development, a complex concept due to its multidimensionality including three pillars: ecological, economic, and socio-political-cultural. A simple analysis of these dimensions does not reveal a dominant means of transport. In this context, this research project aims to analyze sustainable urban mobility proposals from a multidimensional perspective and collaborate with their implementation. For this, we formulate six specific objectives: 1.diagnose urban mobility decisions; 2.formulate participatory sustainable mobility alternatives; 3.evaluate proposals multidimensionally; 4.integrate proposals in public and private spheres; 5.implement some prototypes; and 6.promote knowledge of the SDGs in different sectors. Thus, the objective of the project is aligned with several SDGs: sustainable cities (SDG11), climate change (SDG13), energy (SDG7), and responsible production and consumption (SDG12).

We conducted a mixed-methods research study, using a descriptive case study design focused on the university campus and applying the action-research method. Our research involved both qualitative and quantitative data, which we triangulated from primary and secondary sources to increase construct validity.

The diagnosis of Bahía Blanca city includes a meteorological analysis of rainfall and wind patterns between 2012-2021, as well as an examination of public transportation usage and an online survey to understand citizens' mobility decisions. For the university campus diagnosis, we collected primary data using four instruments: video recordings at access points; an online survey of the university community; interviews conducted with bus drivers and institutional authorities; and a survey of vehicle characteristics in parking lots.

Through our diagnosis of the university campus, we found that private combustion vehicles (41%-50%), public bus transportation (29%-31%), and active mobility (20%-26%) are the most commonly used means of transportation, with electric mobility accounting

for less than 2%. Our survey of parking lots also revealed that 78% of vehicles use petrol, and 36% of them are less than 6 years old. We identified age and car ownership as relevant factors for different types of mobility (active, public, and private), with private mobility being more common among older individuals. Additionally, bike ownership and favourable weather conditions have a positive influence on active mobility, while students are more likely to use public transportation. Finally, we found that higher economic levels are associated with increased use of private transportation.

This project is a valuable contribution to both academics and policymakers, as it provides insights into how urban mobility can be improved to promote sustainable development.