The Impact of a New Methodology to Accelerate the Change of Behaviors, Attitudes and Mindsets (MACBAM) towards Sustainable Urban Mobility

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IDEAS TO IMPACT

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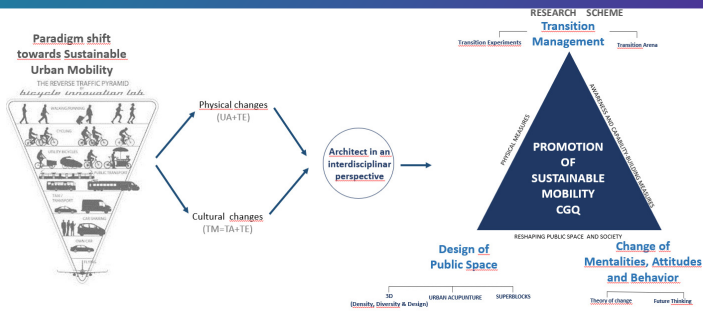
INTRODUCTION

The concept of Transition Management (**TM**) (e.g. Transition Arenas (**TA**) and Transition Experiments (**TE**)) [1]-[5] emerged at the beginning of this century in the Netherlands as a methodology to accelerate systemic changes towards sustainability in society. In the present action-research, these methodologies are articulated in an innovative way with the Urban Acupuncture (**UA**) project techniques, in a continuous interaction of experimentation, reflection and evaluation, consummating a logic of "learning-by-doing". Thus, with the main objective of defining and evaluating a Methodology to Accelerate Change in Behaviors, Attitudes and Mentality (**MACBAM**) towards the promotion of Sustainable Urban Mobility (**SUM**) [6], a cyclic interaction between research techniques and action techniques (evaluated by research techniques) was applied to a Living Lab in a neighborhood in Braga, as an exploratory case study. The use of Experimentation and Simulation in an incubator allowed the analysis of social phenomena in a real context, the testing of research hypotheses and the identification of causal effects of variables on outcome measurements. It also allowed the engagement of Transition Agents, promoting capacity building and mutual learning (between Researchers, Administration and Society) to change the current system to a more sustainable one with an impact on Structure, Culture and Practices.



RESEARCH QUESTIONS

What is the model that Accelerates the Change of Behaviors, Attitudes and Mentality of the Society for the Promotion of **SUM**?

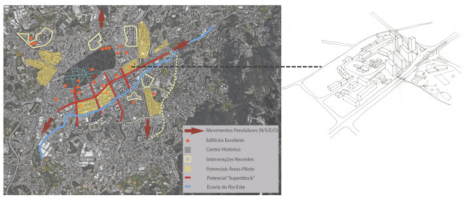
How to increase public acceptance of the redistribution of public space (**PS**), which is currently allocated to cars, in favor of pedestrians?

RESEARCH HYPOTHESIS

The articulation of **TM** with **UA** projects increases the impact on changing the Behaviors, Attitudes and Mentality of Society towards the Promotion of **SUM** and increases public acceptance of **UA** projects for the redistribution of public space (**PS**).

CASE STUDY

CALOUSTE GULBENKIAN QUARTER (CGQ) – BRAGA - PORTUGAL



DIAGNOSIS OF THE STUDY AREA – PEDESTRIAN FLOWS IN CONNECTION WITH THE ATTRACTION POLES

PROJECT TOOLS TO STIMULATE CO-CREATION, ENGAGMENT AND PUBLIC PRESENTATION OF THE PROJECT
(2D drawing, 3D drawing, Model and Augmented Reality)

METHODOLOGY

This Action-Research used a Meta-Methodology [7] that combined the Mixed Method, Case Study, Holistic, Experimental, and Simulation Methods. The research process began by exploring the physical and social conditions of the case study. Following this, the Transition Arenas (TA) were applied and monitored (with the training and empowerment of pioneering transition agents who were challenged to create a Transition Agenda for 2050) and the TE (which tested changes in the redistribution of space from cars to pedestrians). These co-design and engagement procedures shaped the preliminary design and the UA Project for 2050, Through surveys of stakeholders (before and after the implementation of TM) it was possible to assess: 1| the impact of this methodology in accelerating the change of Behaviors, Attitudes and Mentalities; 2| the receptiveness of the population to the codesign project achieved; 3| assess the impact of the project's four communication tools (2D drawing, 3D drawing, Mock-up and Augmented Reality) on the receptiveness of the population.

PRELIMINARY RESULTS OF THE IMPACT OF THE ACTION-RESEARCH

Around 3000 people participated through: Focus Group, Surveys, Interviews, Transition Arena, TE and co-design. The initial engagement with pioneering Transition Agents ensured that they focused on sustainability targets and the subsequent capacitation of stakeholders enabled collective empowerment in this direction. The Co-Design process enabled the capacitation and mutual learning between researchers, administration and society. The Future Thinking methodology (setting the challenge in 2050 and then returning to the present) allowed to define more ambitious long and short term goals.

By comparing the results of the surveys carried out in 2022 with those of 2024, it was possible to assess the impact of the methodology applied to the case study. Thus:

- There has been a reduction in the percentage of people who say they always or often use the car (from 71.6% to 67.8%);
- The number of people who say they always or often use the pedestrian mode has increased (from 22.5% to 28.6%);
- The percentage of respondents who say they always or often use a bicycle more than doubled (from 1.8% to 3.9%), with the group of residents contributing the most to this increase (from 2.9% to 15.7% in this group).
- There has been a considerable increase in those who say they always or often use Public Transport (PT) (from 4% to 12%)
- The percentage of residents who are very interested or interested in changing their mode of transport to public transport (from 55.7% to 64.%) and to pedestrian transport (from 72.7% to 76.6%) increased.

In the surveys carried out after the presentation of the final project, there was great acceptance of the project (90% said they agreed with the project). The majority of respondents said they would like to see the 2050 project implemented in the short term (over 50% would like to see the project implemented before 2030 and 31.8% in 2030). The design tools that respondents consider to have had the most impact on the perception and acceptance of the 2050 project were 3D drawings (47.7%), Augmented Reality (36.4%), and mock-ups (31.8%).

Between 2021 and 2024, within the CGQ, the number of vehicles decreased (7.96% and 13.28%), in contrast to what happened at the traffic counting points outside the block (18.88%, 8.34%).

This exploratory study made it possible to define a new MACBAM that is already being replicated in other case studies by the Municipality of Braga.

With regard to the research hypotheses, although the analysis of the results has not yet been completed, it can already be said that the hypotheses have been verified. In other words, the application of MACBAM, which provides for the articulation of TM with the development of UA projects, accelerates the change in behavior, attitudes and mentalities in society in favour of sustainable mobility. The use of MACBAM, through the co-creation process and the use of codesign project communication tools such as 3D drawings and Augmented Reality, as well as the application of Future Thinking techniques, increases the acceptance of projects by the population.

A NEW METHODOLOGY TO ACCELERATE THE CHANGE OF BEHAVIORS, ATTITUDES AND MINDSETS (MACBAM) TOWARDS SUSTAINABLE URBAN MOBILITY (SUM)


Disorganized car parking; Focus Group with children; model with public participation

RESEARCH

1 DIAGNOSIS
Direct Observation
Traffic, Pedestrian and Bicycle counts
Photographic survey
Surveys
Interviews
Focus Group

4 MONITORING OF TRANSITION EXPERIMENTS
Direct Observation
Traffic, Pedestrian and Bicycle counts
Photographic survey
Surveys
Interviews

6 EVALUATION
Direct Observation
Traffic, Pedestrian and Bicycle counts
Photographic survey
Surveys
Interviews
Focus Group

7 DISCUSSION CONCLUSIONS
Compilation of information
Discussion of results
Conclusions
Publication of papers(n>10)
Finalization of the PhD
Diffusion

ACTION

2 CHARACTERIZATION
Drawings and models
Functional distribution of public space
Urban Dynamics
Number of floors
Functional occupation
Shadows in the public space
Pedestrian paths

3 TRANSITION MANAGEMENT
Transition Arena
Codesign with pioneering transition agents
Transition Agenda
Transition Experiments
Livable streets
Parklet
Collaborative painting of the asphalt

5 CO-CREATION PROJECT
Co-design
Transition Arena
Pre-study
Engagement
Final project
(2D drawing, 3D drawing, Model and Augmented Reality)

8 IMPLEMENTATION
Implementation of the 2030 project
Broadening the case study
Scalling up
Replication of the case study (N=3, in Braga)

RESEARCH
Literature Review (N>1000)
Comparative case studies (N=1+5)
Photos (N> 2500)
Direct Observation (>100h)
Focus Group (>1000 participants)
Interviews (N>20)
Surveys (N>700 respondents)

ACTION
Characterization of the study area
Transition Arenas (>30h; >101 participants)
Transition Experiments (N=3)
Co-design Project


Model with school community proposal and public presentation of the result of the co-creation process

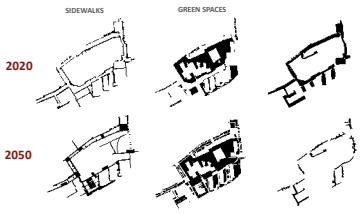
Transition Experiments

Collaborative painting of the asphalt

Parklet

Livable Streets

RESULTS AND IMPACT IN THE REDISTRIBUTION OF PUBLIC SPACE



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