reviewed paper

Shaping Urban Changes for Child-Friendly Cities: How Participation and Co-Creation Processes are Transforming Car-Oriented Neighbourhoods in the Metamorphosis Project

Loredana Dazzo, Nick van Apeldoorn

(Loredana Dazzo, MSc Research associate, Technische Universität Dresden, loredana.dazzo@tu-dresden.de)
(Nick van Apeldoorn, MSc Researcher and project manager, Breda University of Applied Sciences, apeldoorn.n@buas.nl)

1 ABSTRACT

The focus on cars in urban planning has made cities increasingly child-unfriendly. The European research project Metamorphosis aims at introducing new ideas and suggestions for changing this by empowering active mobility and bottom-up human-scale design. In three years, from 2017 to 2020, three universities, three commercial parties and seven cities work together towards a common goal: the development and implementation of bottom-up measures to achieve lasting behavioural change to make neighbourhoods more inclusive, active, less car-dependent and thus child-friendlier. The exploration of new ways to involve primary school children in city planning proofed to be successful and granted bigger support for the project among children, parents, schools, neighbours and policy makers. Aim of this paper is to elaborate on the implemented measures, the participation and co-creation processes carried out, as well as on the evaluation approach used, the project results and lessons learnt.

Keywords: child-friendly neighbourhood, co-creation, active mobility, behavioural change, public space

2 INTRODUCTION

Metamorphosis, as the Greek word suggests, is about changes. It is an EU-funded project based on the initial premise that, when an urban neighbourhood has many children in its public spaces, this is a major indicator that it is well designed as a people-oriented and sustainable neighbourhood (Gehl, 2013).[1]

Metamorphosis includes implementations in seven European cities participating with in total 64 different neighbourhoods (Fig. 1), selected to have a wide variety in size, structure, density and diversity. The participating partner cities are: Alba Iulia (RO), Graz (AT), Meran (IT), Munich (DE), Southampton (UK), Tilburg (NL) and Zurich (CH). The research and consultancy partners involved in the project are FGM-AMOR (AT), Ökoinstitut Südtirol (IT), Technische Universität Dresden (DE), University of Southampton (UK), Breda University of Applied Sciences (NL) and Synergo (CH). This international approach was taken on purpose. Since bottom-up measures are all about the community, it is essential to explore this as a wide range of different contexts to try to understand why something would work in Southampton and not in Graz, or vice versa.

Fig. 1: Cities implementing the Metamorphosis measures

Main project objectives are:

[1] http://www.metamorphosis-project.eu/

ISBN 978-3-9504173-8-8 (CD), 978-3-9504173-9-5 (print)
Editors: Manfred SCHRENK, Vasily V. POPOVICH, Peter ZEILE, Pietro ELISEI, Clemens BEYER, Judith RYSER, Christa REICHER, Canan ÇELIK

(1) Transform car-oriented neighbourhoods into children-friendly urban environments, achieve mobility behavioural changes and increase the quality of life;

(2) Build the vision needed for such transformations - involving end-users, including children, and stakeholders;

(3) Answer some basic research questions related to neighbourhood transformation regarding catalysts for integration, the connection between neighbourhoodness and engaging in neighbourhood activities and how to engage with difficult to reach target groups;

(4) Achieve creative breakthrough innovations – in development, in design, in governance and in planning procedures - for streets, squares and other public spaces in neighbourhoods and urban districts by involving end-users;

(5) Develop and implement children friendly mobility solutions (e.g. pedestrianisation, better and more equitable shared public spaces, street design elements, child-oriented 'Share Points');

(6) Evaluate take up, involvement, process and impacts using innovative evaluation methodologies;

(7) Develop and implement innovative transfer instruments to transfer Metamorphosis-innovations from city to city and country to country, also beyond the duration of the project.

3 THE INNOVATIVE METAMORPHOSIS APPROACH

3.1 Nature of the implemented measures

The measures the seven partner cities are implementing lead from temporary activities to permanent implementations and are classified in the following areas:

- Interventions in public space, including e.g. hybrid zones, living labs and other interventions as public breakfasts, the transformation of parking spaces and on-street leisure elements.
- Temporary closures/openings, including e.g. closure of streets or squares for cars and open them for people in the form of holiday streets, festivals and living labs, particularly around schools and kindergartens. They grant children the opportunity to play on the street and use them as meeting space, promoting neighbourhoodness and child-friendliness. Especially for immigrant parents, it's essential to build their network through their kids.
- Crystallisation points - locations where people and children can communicate. These could be share points (e.g. mobility points) or urban gardens.
- Educational innovation tools - awareness raising tools, tools to encourage change and involve children in a playful way. This also includes inputs to the curricula, for example with provision of material to educate teachers and pupils on how to conduct a local school 'environment scan'. For this, the consortium is working closely with educators.
- Empowerment of active mobility, in the form of workshops and trainings to increase cycling competence, bike repair courses, walking buses, etc.
- In addition, the improvement of planning procedures and integration of know-how and successful activities into the local SUMP are also expected in the project.

3.2 Participation and co-creation with children

Since a sustainable neighbourhood, in terms of generations, implicates the involvement of the next generation, the project has its main focus on primary school children. The unique and innovative approach of Metamorphosis is to make children, ranging mainly from six till thirteen, essential stakeholders in thinking about urban space and value their input during all the phases of the project (Fig. 2). In every phase, children were involved differently. In the co-creating workshops, they came up with the measures and they helped with the implementations. After the implementation, they helped with the collection and evaluation of data for specific indicators and results that they then disseminated among their families. This involvement granted the opportunity to analyse urban problems not only from a researcher's perspective but also through children´s eyes.

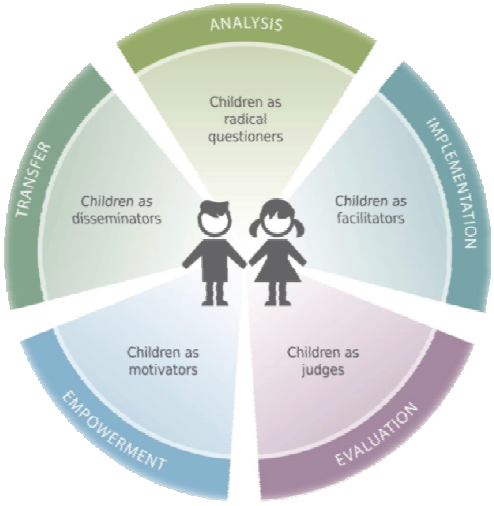

Fig. 2: Involvement of children (source: Grant Agreement Metamorphosis project)

This approach is essential to develop new and daring mobility solutions and create appropriate public spaces, especially for children, and increase the quality of life of all the inhabitants. Because when cities are designed for its most vulnerable group, all others thrive. In the evaluation process, children acted as critical and honest judges. Their ability to question everything, the well known “yes but why?”, helped to analyse their needs, habits and routines. And it all boils down to one simple thing: when people start using active modes at an early age, they are more likely to keep using those active modes in the future. This promotes active modes right from the start instead of trying to convince people to change their habits at a later age. Moreover, the success rate of implementing innovative or daring measures was higher when they reflected the wishes and desires of children since adults act more frequently on their children’s requests than on the request of experts telling them how to do so. Also, on a political level it is difficult to be against the wishes of children. Especially in combination with adults reminding them of the urgency for change. This philosophy granted an overall bigger approach for the project.

3.3 Practical example from Tilburg

But how does this work? In Tilburg, first stakeholders were consulted about what they need. The focus was around school environments. During several stakeholder workshops policymakers, parents and teachers were consulted about their needs. Since meeting formats were presumably less effective with children, they were asked in a school environment scan to point out things they liked and didn't like. A school environment scan is a walk with groups of children (around 4-8 per group) in which they were asked to rank their neighbourhood with green and red thumbs (Fig. 3). The locations that they rated are then noted on a map of the school environment with an explanation for the rating. The guardian/researcher is not allowed to steer the thoughts of the group in any direction and is just there to put down notes, answer questions and makes sure the group is safe. After the walk, the analysis of the group was compared with the analysis of the other groups to get a comprehensive idea of how kids look at the city. This is how kids contribute to the analysis of the school environment. In the next "dream workshop" children are asked to "sleep" and dream of their ultimate cityscape. After two minutes of "dreaming", the researcher asks them to draw it out. The researcher asks them to explain what they drew. Results range from Jurassic Park-like public spaces, dino's included, to very practical ideas on how to solve problems that they did encounter on their environment scan. This contributes to concepts for implementations. Then they are asked to present their findings in front of the class. In Tilburg, a city representative was present in most of the cases. This is how they transfer knowledge about how they perceive their city and what child-friendly is. By presenting it to a city official, their ideas get empowered. In a later event, the kids are asked to help with the implementation around their school zone. The type of implementation is based on the stakeholder workshops or the environment scan. Expectation management is very important at this stage.

Kids are easily disappointed and do not always see the bigger picture. After the implementation parents are asked to visit the implementation by the children. Now they transfer knowledge to their parents. This will most likely also reach the coffee tables of their grandparents, for instance – a good example of positive

ISBN 978-3-9504173-8-8 (CD), 978-3-9504173-9-5 (print)
Editors: Manfred SCHRENK, Vasily V. POPOVICH, Peter ZEILE, Pietro ELISEI, Clemens BEYER, Judith RYSER, Christa REICHER, Canan ÇELIK

mouth to mouth marketing to inform people about the project and stimulate thinking about child-friendly cities. After the implementation, the impact is evaluated with the children and parents. Here it is not only important if the measure worked (counted impact) but also if they perceived it worked (perceived impact). Both are often not the same and insights in this helped the project in the process evaluation of the measures – children as judges.

Fig. 3: School enviroment scan in Tilburg (source: Metamorphosis)

3.4 Mixed evaluation approach

During the project, two different forms of evaluation were carried out: impact and process evaluation. Impact evaluation deals with the understanding of the practical/technical effects of measures, whereas process evaluation was concerned with understanding more clearly why measures have succeeded or failed (Crawford, & Bryce, 2003). Constant interaction of these two kinds of evaluation is necessary to achieve expected goals and targets and learn lessons to transfer. An in-depth analysis and understanding of the process, indeed, is essential to understand the data gathered and report the impacts of implementations.

3.4.1 Impact evaluation

The impact of the measures is assessed through the measurement (before and after the intervention) of specific indicators (European Platform on Sustainable Urban Mobility Plans, 2016; Flükiger, 2015) concerning the usage and safety of public spaces (e.g. people/ children in public spaces, traffic conflicts), the perception of public spaces (in terms of safety, greenery, attractiveness of the urban design, local identity, air and noise pollution) and mobility habits (e.g. modal split of the home-to-school trips). In addition, key Metamorphosis indicators, suitable for every measure (such as the satisfaction/ acceptance of the measure and the number of participants), have also been included in the data collection by all city partners.

Since children are constantly involved in the project, these indicators consider the feasibility of collecting the appropriate data (Litman, 2011; Balsas, 2004; Arup, 2017), the easiness to measure and communicate them. Methods most used are observations/ countings, interviews, questionnaire surveys, GPS trackings and mobility games.

Table 1 shows a detailed overview of the indicators and related methods the cities applied to for specific categories of measures.

Indicator	Data collection methods used in Metamorphosis	Measure*
Satisfaction with the measure	Questionnaire Hands-up survey	All measures
Number of participants/ users	Registrations Counting Hands-up survey	All measures
Number of affected people	Counting Extrapolate	All measures
Number of children in public space	Counting Observation	TSO, IPS
Average time spent in public space	Observation Questionnaire	TSO, IPS, WAM
Diversity or variety of activities / people's interactions	Observation Counting Questionnaire	TSO, IPS, TPS
Modal split	Questionnaire Gamified survey	WAM, TPS
Modal choice (school way, leisure car trip, daily goods shopping)	Travel Tracker Hands-up survey Questionnaire	TSO, TPS, WAM
Attractiveness of the school surrounding/ way to school	Questionnaire	TSO, IPS, WAM
Perception of safety, noise and air pollution	Questionnaire	TSO, IPS, WAM
Implemented ideas and tips from children	Questionnaire Observation	IPS, TPS
Opinion polls	Questionnaire	IPS
Area transformed (urban green and public space)	Measurement of area	TPS, IPS
Area dedicated for cars (street and parking)	Measurement of area Counting	TSO, IPS, TPS
Acceptance of the measure	Questionnaire Voting tool	IPS, TPS, WAM
Skills learned	Voting tool Questionnaire Observation	IPS,WAM
Awareness level	Questionnaire	IPS, WAM
Client-business relations	Questionnaire Counting	IPS, TPS
Number of utilisations	Counting Analysis of user sheets	IPS, TPS, WAM

Table 1: Indicators and methods used by the cities for specific measures. *TSO: Temporary street openings. IPS: Interventions in public space: temporary changes, such as public breakfasts or movable greenery. TPS: Transformation of public space: permanent changes creating crystallisation points, such as urban gardening or mobility share points. WAM: Workshops for active mobility: such as walking busses or repair workshops.

3.4.2 Process evaluation

Besides the impact evaluation, a process evaluation was conducted in order to monitor the single steps of the project and solve arising problems (Dziekan et al., 2013). Process evaluation involves the evaluation of the process of preparation and implementation of the measures, including the roles of information, communication and participation. It provides insights into organisational and administrative factors and looks at the phases of the process and not necessarily at the output. Process evaluation is more qualitative than quantitative and has the aim to extract lessons learnt from the cities that will be helpful for future activities and help to recognise similar obstacles before they become a problem. The results of the process evaluation are collected via biannual online questionnaires with questions focusing on the implementation

and operation phase respectively. Furthermore, workshops organised during project meetings and periodical telephone conferences help to identify further barriers and drivers.

4 RESULTS AND LESSONS LEARNT

At this stage of the project, the city partners already achieved most of the impacts expected, including:

- In total, about 140,000 people directly affected by the measures applied across the seven cities and over 30,000 citizens contributed actively to the process.
- Usage of public space by children and adults increased by over 40% after interventions, based on before and after survey counts in Graz.

ISBN 978-3-9504173-8-8 (CD), 978-3-9504173-9-5 (print)
Editors: Manfred SCHRENK, Vasily V. POPOVICH, Peter ZEILE, Pietro ELISEI, Clemens BEYER, Judith RYSER, Christa REICHER, Canan ÇELIK

- In Munich over 80% of the surveyed parents and children (sample size = 146) that took part in the 'Walking Buses[2]' for home-to-school-trips stated that they did not use the car for pick-up and drop-off trips to school. 90% said they were satisfied with the change.
- A reduction by 56% of the number of students travelling by car after the introduction of a timed school street closure in Southampton, as well as an increase of the perception of safety and simplicity of street crossing by 68% and of the attractiveness of the street by 50% (sample size = 38).
- An average of 92% of adults and children participating in or affected by the measures said they were 'very' or generally satisfied with the child-friendly transformations through feedback questionnaires, interviews or 'hands-up' surveys.

The Metamorphosis consortium managed 60 different measures including a total of 785 implementations.[3] 36% of these implementations took part in the activity field Empowerment of Active Mobility, 33% in Interventions in Public Space, 17% in Educational Innovation Tools, 11% in Temporary Street Closures/Openings, 3% in Crystallisation points. The 785 implementations took place across Europe in three years. Many of the useful lessons learnt by the project partners have been reported in the process evaluation questionnaires designed to assist their efforts during the different phases. As regards the main findings from the last questionnaire, the city partners stated they were either 'very' or generally satisfied with 95% of the measures implemented. The appreciation was higher for measures that were organised in cooperation with local schools. This indicates that activities planned to be suitable for specific ages of children were in most of the cases perceived as more effective, creative and contributed to the success. In addition, based on the experience of Munich and Tilburg, the success of training workshops and other initiatives that empowered children and their families in active mobility is strongly dependent on the support provided by school directors, teachers and parents. Staff's time and resources necessary to plan and prepare an implementation as well as the ongoing commitment of the cooperating schools are essential factors that influenced the data collection for the impact evaluation of implementations.

However, some of the initiatives also met with local resistance. In Graz for example, the implementation of hybrid zones, livin' labs and new urban design interventions initially faced complaints from a few local inhabitants but also legal barriers due to the permissions required to the local authority to use the roads during the implementations. Effective counter measures were in these cases an intensive negotiation with the responsable departments in the city administration, in addition to the decision to first start testing small implementations aimed to become later longer or even permanent transformations, if they worked well as temporary.

Nonetheless, such events were generally welcomed by residents, when properly informed, and especially by parents of children directly involved, and gaining their support, e.g. via workshops, as well as that of local community organisations, was seen as a very important contributor to the success of the measures. Good feedback also came from Alba Iulia and Zurich, where children and adults taking part in the open 'public breakfasts' and transformations of parking lots into fun play spaces declared that they really enjoyed the activities and showed awareness of the need for change. The experiences of temporary street closures/openings in Southampton, Graz, Munich and Zurich also showed the need for strong political support. They required long lead times for the organisation, due to the complexities of the process, and good communication and cooperation with all the partners and stakeholders involved is essential. However, the latter was rated as the most relevant driver for 62% of the measures, followed by an efficient communication with the local neighbourhood as a key factor for success for 32% of the measures.

5 CONCLUSION

The implemented measures by Metamorphosis in the last three years showed profound behavioural changes in the affected neighbourhoods and a general increase of the liveability for the citizens. The Metamorphosis bottom-up activities contributed to a strengthening of the cooperation with stakeholders in the city, including children and the local community. Relevant lessons learnt on the engagement of children at school are that

[2] A Walking Bus is a group of pupils walking to school along a set route accompanied by a supervising adult. Among other things, it increases safety as well as physical activity during travel to and from school.
[3] Number of implementations as reported in March 2020

implementations where parents are involved as well proofed to be more successful in the long term since they often make the mobility choices for their children.

The experienced difficulties faced during the data collection highlighted the importance to analyse the process to understand the impacts and learn from it at future events.

Furthermore, the engagement of children requires different techniques to the traditional ones used with adults. Methods and ways to communicate need to be adapted to the situation and be suitable for the age of the target groups involved. This includes creativity and fun like games, concrete questions and some didactic skills.

Streets given back to children made them aware of what public space can be and that their voice can be heard to design or improve the quality of the city actively. Views and ideas have been collected in brainstormings after the exploration of the neighbourhoods. Those ideas were then officially proposed to the city administrations, that encouraged local policy makers to change their views on public space and make children's wishes concrete. Thus, the project provided good practices on how to integrate children's wishes in urban planning, and many of the interventions will concretely become part of the local sustainable urban mobility plans in the project cities. What was striking is that children want what most people want for their cities. Green, safe, active places with loads of opportunities for social contact. We should listen to them more often.

6 REFERENCES

ARUP (2017). Cities alive. Designing for urban childhoods. London, 2017.

BALMAS, C. J.L. Measuring the Liveability of an Urban Centre: An Exploratory Study of Key Performance Indicators. Planning Practice and Research, 2004.

CRAWFORD, P., & BRYCE, P. Project monitoring and evaluation: a method for enhancing the efficiency and effectiveness of aid project implementation. International Journal of Project Management, 2003.

GEHL, J. Cities for people. Island press, 2013.

DZIEKAN, K., RIEDEL, V., MÜLLER, S., ABRAHAM, M., KETTERN, S., DAUBITZ, S. Evaluation matters: A practitioners' guide to sound evaluation for urban mobility measures. Waxmann Verlag, 2013.

EUROPEAN PLATFORM ON SUSTAINABLE URBAN MOBILITY PLANS. Monitoring and Evaluation - Assessing the Impact of Measures and Evaluating Mobility Planning Processes, 2016.

FLÜKIGER, S. Qualität von öffentlichen Räumen - Methoden zur Beurteilung der Aufenthaltsqualität. Fussverkehr Schweiz, 2015.

LITMAN, T. Sustainability and Liveability: Summary of Definitions, Goals, Objectives and Performance Indicators, 2011. Client-business-relations

ISBN 978-3-9504173-8-8 (CD), 978-3-9504173-9-5 (print)
Editors: Manfred SCHRENK, Vasily V. POPOVICH, Peter ZEILE, Pietro ELISEI, Clemens BEYER, Judith RYSER, Christa REICHER, Canan ÇELIK