



Campaigns and Awareness-Raising Strategies on Sustainable Urban Mobility

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Abstract. The increasing demand for urban mobility in modern cities leads to traffic congestion and other environmental and societal impacts, requiring a shift to more sustainable mobility behavior. However, travelers are not well informed about the possible sustainable modes and their advantages, as traffic education is often limited to learning traffic rules. To raise awareness on sustainability, various techniques may be used, such as designated educational programs, training sessions, seminars and campaigns. Acknowledging the spread and popularity of social media, the aim of the paper is to investigate how a shift in behavior towards more sustainable modes of transportation may be affected by a digital campaign. The coherent production of a successful sustainable urban mobility campaign is a complex task and requires a thorough understanding of the general needs of those affected. Firstly, the paper reviews and analyses previous campaigns and strategies related to sustainable urban mobility implemented in European countries. Analysis includes the organization, which was responsible for initiating the campaign, the time period, theme, scope, target group and type of approach. In those cases, that evaluation of the campaign was conducted, impacts on attitudes and behavior are also identified and the success attributes of the campaigns are selected. In the context of further research, an on-line questionnaire survey was carried out for the identification of travelers' preferences and attitudes towards innovative strategies that raise awareness in sustainable urban mobility, promoted and supported by social media (Facebook, Instagram, Twitter, etc.).

Keywords: Sustainability · Alternative transport modes
Promotional campaigns · Social media · Digital campaigns

1 Introduction

Over 70% of people live in cities and urbanization is rapidly growing worldwide. This situation demanded the creation of Sustainable Urban Mobility Plans (SUMPs) which address the design and application of urban mobility schemes, supporting sustainability. These schemes support the adoption of sustainable ways of transport, such as soft modes (cycling, walking), public transport and alternative use of private vehicles, through car-sharing and carpooling systems [1].

Promotion is required for these alternatives to gain attention and become a transportation choice an urban resident would consider. This promotion can take the form of a marketing campaign or other awareness raising strategies that help towards a more widespread adoption of an active lifestyle or more sustainable travel behavior, such as active school travel and peer support schemes or promotional events [2]. Marketing campaigns are mainly characterized by objectives, target groups, the nature of their messages, and the evaluation methods of their results [3].

This study focuses on marketing campaigns and awareness raising strategies on sustainable urban mobility. Due to how digital technology has reshaped the way a campaign interacts with users, and taking into account the explosive growth of social media use and the amount of time being spent on them, a shift from traditional campaigns to campaigns on digital channels should be considered. As a result, an online questionnaire survey was designed and carried out, in order to recognize and evaluate the role of social media in travelers' attitudes and preferences, since they are known to be of significant help in involving community stakeholders in the decision making process of sustainable mobility policy formulation, as well as in communicating the measures to the public [4].

2 Methodology

The methodological approach of this study is organized into two parts. The first part regards the review and analysis of European campaigns and strategies addressing sustainable urban mobility. For each campaign/strategy, data were collected about the country of implementation, the responsible organization, time period, scope (local, regional or national), target groups (general or specific), main objectives, theme, media plan (i.e. internet, brochures, local events) and type of approach (i.e. informative, positive, etc.). In those cases, that the campaign or strategy was evaluated, the research design, the data collection technique and the evaluation outcomes (impacts) were also recorded.

The online questionnaire survey aimed to capture the attitudes and preferences of people towards digital campaigns and strategies raising awareness in sustainable urban mobility, supported or promoted by social media. The survey recorded the viewpoint of respondents on the use of social media (preferable media account, time and frequency) and the role of social media on travel behavior (before, during and after an activity), along with demographic characteristics.

3 Sustainable Urban Mobility Awareness Campaigns and Strategies: A Review

To gain insight and knowledge about sustainable mobility awareness campaigns and strategies, ten cases, implemented in EU countries, were studied and analyzed (Table 1). In all cases, the campaigns/strategies were part of a larger scheme or project, which aimed at promoting sustainable mobility behavior in their target groups. This indicates the need for tangible measures and strategies to be implemented in parallel

with awareness campaigns, to help make the concept and importance of sustainable mobility more explicit.

The review showed that a significant number of projects have been co-funded by the European Commission (EC), which indicates the high importance of sustainable urban mobility in European Union (EU), and the significance in incentivizing member states to cooperate towards this common goal. Evidence for this, in the current study, are the eight out of ten studied campaigns/strategies that were implemented in multiple European countries [5–12]. Due to the scale and complexity of implementation, it is rare for relevant activities to be organized by a single organization. Thus, in nine out of ten cases studied, participating organizations comprised of academic and EU institutions, public bodies and private entities [5–12, 14].

The majority of the campaigns/strategies were implemented at a local level. The only exception was the Traffic Snake Game Network, which had a more easily defined target group and was implemented in primary schools across eighteen European countries. In this particular case, the schools helped with the collection and registering of the data [8]. The theme of the campaigns was generally related to the promotion of sustainable mobility and alternative sustainable transport modes. Most implementations focused on the promotion of a combination of cycling, walking and public transport modes [5, 7–10, 12], while others adopted a more focused approach, and considered only public transport [13]. There was also the case of the Today and Tomorrow project, which focused on the promotion of car-sharing and bike-sharing schemes [6].

Focusing on target groups, these ranged from the residents of the cities where the campaigns/strategies were implemented [10, 12, 13], to more specific groups like commuters to business and industrial zones [11], or potential users of a public transport mode [13]. Other target groups included primary school students and their parents [7], university students and faculty [6], company employees [8] and persons over a certain age [9]. Regarding the topics of the ten studied cases, there were slight differentiations, still revolving around the central theme of sustainable urban mobility. Some focused on the existing organizational barriers and ways to overcome them and communicate sustainable mobility to the interested parties [5, 9, 11], while others focused on the environmental impacts of urban mobility appealing to members of their target groups, to help change the situation [6]. However, the main objective of the majority of the campaigns/strategies was the promotion of the concept of sustainable urban mobility to their respective target groups, as well as its adoption by them [6, 7, 10, 12–14].

In all of the aforementioned cases, an informative and positive approach was adopted towards their target groups. The message was intended to inform the public, present the benefits of sustainable mobility and state the future consequences of the current situation. The cooperating organizations responsible for the planning and implementation of each initiative used almost every available means of communication to deliver the developed message. Internet was used in the promotion stage of each case, in conjunction with printed material, local events and the press. The use of social media however was very limited, which can be attributed to the fact that many of the campaigns/strategies were implemented before social media received their current popularity.

In most of the studied cases, their impacts were evaluated, usually by measuring a list of performance indicators, such as the reduction in the use of private car, the

Table 1. Overview of European Union campaigns and strategies.

Campaign/strategy	Country	Objective	Media plan	Evaluation	Theme	Target group	Ref.
ASTUTE	Several	Overcoming organizational barriers	Internet, brochures, local events	Longitudinal study	Cycling, walking	City inhabitants	[5]
Today and Tomorrow	Cyprus, Portugal, Italy	University mobility impacts reduction	Internet	Questionnaires, interviews	Carpooling, bike-sharing	Students and faculty	[6]
The Traffic Snake Game Network	18 EU countries	Travel behavior change	Internet, local events, posters	Before-after analysis, longitudinal study	Cycling, walking, car-sharing, public transport	Primary school children and parents	[7]
MOBI	Several	Travel behavior change	Internet	Longitudinal study, after analysis	Cycling, walking, car-sharing, gamification	23,400 employers of 117 companies	[8]
AENEAS	Several	Alternatives to car use	Internet, brochures, newsletters	Questionnaires	Walking, cycling, public transport	Senior citizens	[9]
SWITCH	Several	Soft modes promotion for short trips	Internet, local media	Before-after analysis	Walking, cycling	City inhabitants	[10]
MoMa.BIZ	Several	Business & industrial zones mobility issues	Internet, local events	Before analysis	Mobility issues	Business & industrial zones commuters	[11]
PROMOTION	12 EU countries	Influencing travel decisions at home	Several	SUMO evaluation method, Before-after behavioral analysis	Public transport, car-sharing, walking	City inhabitants	[12]
Casteddu Mobility Styles	Italy	Light metro service promotion	Internet	Before-after analysis	Metro service	Car users	[13]
CIVITAS	Portugal	Sustainable transport behavior	Internet, local events, posters, flyers, local press	Questionnaires, interviews	Eco-driving, school mobility, public transport	Residents, students	[14]

increase in the use of sustainable transport modes and the reduction of CO₂ emissions [5, 6, 8–10, 12, 13]. More specifically, the reduction of CO₂ emissions ranged from 51 kilograms [8] to 4695,74 tons [12], while the increase in the use of alternative transport modes ranged from about 1.5% [14] to about 25% [9]. In two out of ten studied cases, the evaluation was conducted through a more qualitative approach [11, 14]. In these cases, the positive impacts were estimated by the general acceptance of the sustainable mobility concept by the target groups.

4 Survey Findings

The survey was realized during the period January–February 2018, and the sample size was determined to 237 users (56% women, 41% men). 40% of the respondents are between 18–25 years old, 52% of them between 26–35, 6% between 36–45, 1% of them younger than 18, and 1% older than 45 years old. Also, 37% of the participants are students, 47% have a full-time job, while 7% a part-time job, 7% are unemployed and the rest 2% answered other. The 80% of the respondents live in Greece and the rest 20% live currently abroad.

For the analysis of the respondents' characteristics (gender, age, occupation, etc.) descriptive statistics were applied, while Chi-square (X^2) test for homogeneity was used to test differences in responses measured by categorical variables. A confidence level of 95% and confidence interval of 5% were assumed. Results of the survey showed that 97% of the participants use social media.

The sample was grouped according to parameters such as gender (male-female) and occupation (students - full-time job) and the analysis was based on this grouping. The age of participants was not used for grouping, since the occupation-based grouping in the category students includes all the participants that are between 18–24 and the participants with full-time job are between 26–35.

The first step for a successful campaign is to choose the most appropriate social media platform. This choice should be done after the determination of the campaign's target group. Based on the survey, Facebook and Instagram are the most used social media for both women and men as well as for students and participants with full-time job. Men and participants with full-time job are also interested in job-related social media such as LinkedIn, while women are interested in inspirational image-based platforms such as Pinterest.

The time that a digital campaign goes live is also of crucial importance. Some social media tend to change the order the content is presented on the user's feed. Lately, Instagram switched up user feeds to show more interesting posts first, instead of showing posts in standard chronological order. This means that the time a post is live does not play any role on Instagram anymore. The survey participants were asked regarding the time of the day with the most frequent use of social media. The majority of men and women as well as the highest percentage of students and full-time job participants use social media between 17:00–00:00.

In social media is very important that the content the user shares to be so relevant and engaging, that the affected people should enjoy reading, seeing or hearing and feel motivated to share it with their "web friends". In this survey, participants were asked

what would raise mostly their awareness on travelling possibilities and the answers are presented in Figs. 1 and 2. The majority of the participants answered that a message by a designated account related to transport would raise more their awareness. Still, the differences between the several options were not statistically significant (p -value > 0.05).

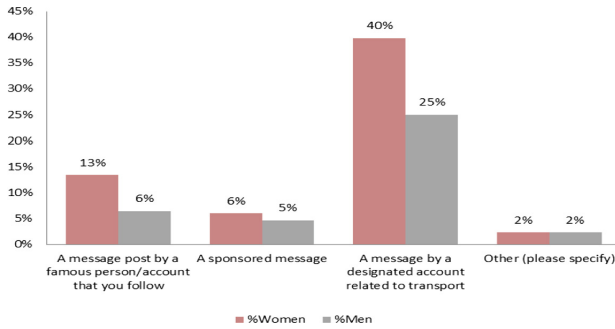


Fig. 1. Preferences on the approach of raising awareness on traveling possibilities depending on gender.

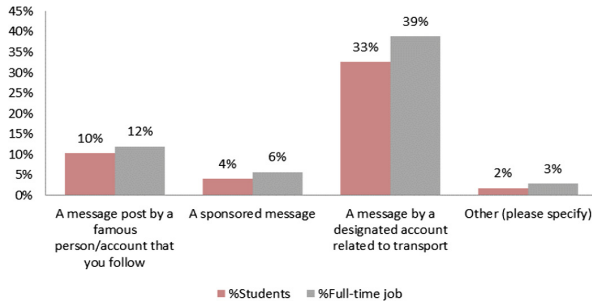


Fig. 2. Preferences on the approach of raising awareness on traveling possibilities depending on occupation.

An informative or a humorous message would be more appealing for both women, as well as for students and participants with full-time job (Figs. 3 and 4). Similarly, the differences between the several approaches were not statistically significant (p -value > 0.05).

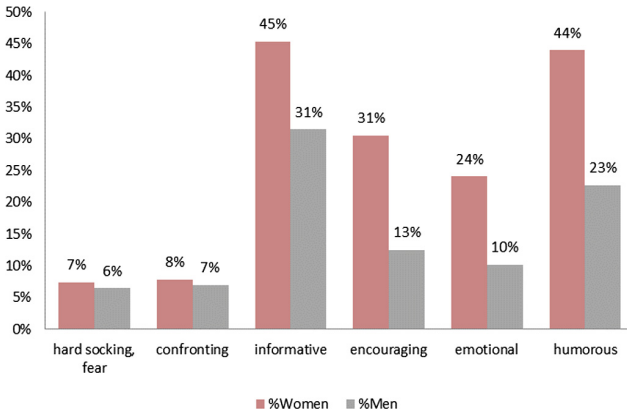


Fig. 3. Preferences on message appeal (women, men).

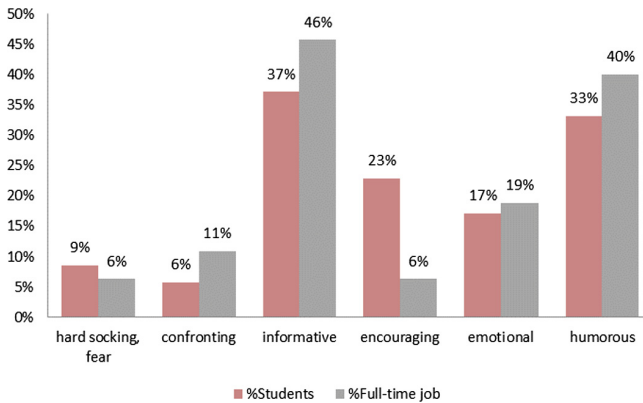


Fig. 4. Preferences on message appeal (students, full-time job).

5 Conclusions

Social media is a promising way to reach a large number of people and spread awareness and transport-related information to them. With the tremendous use of car, social media have become popular channels to promote sustainable mobility and a more active lifestyle. The survey conducted in the context of this research, showed that a message with informative content is more appealing to the users and that a message by a designated account related to transport would raise more the awareness of the majority of respondents towards implementing sustainable solutions for urban mobility. In order to influence positively this attitude towards sustainable mobility, the key is the formulation of a framework through which digital campaigns can be created to support sustainable urban mobility awareness. The current study also highlights the need for further investigation of how much people interact with the content of a digital

campaign. The connection between this degree of interaction and the rate of a more sustainable behaviour adaption should be further examined.

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