

The Drive to Walk

Identifying Milieu-based Persuasion Types for Motivating Active Mobility

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Abstract. Promoting active mobility to people requires devising both adequate information offers and services, but also appropriate incentives and motivations to arouse interest and actually change mobility behaviour. To develop persuasion strategies for different social groups, methods from social sciences (Sinus Milieus) are applied in order to identify homogeneous groups of shared mobility-related information needs and to extract appropriate group-related arguments to promote active mobility (e.g. health, environment, costs, image, or adventure). The paper describes the methodological approach and the results in form of six comprehensively defined homogeneous target groups. Based on the outcomes, tailor-made concepts for specifically addressing each target group (arguments, information needs, and preferred information channels) are currently developed, thus providing a solid basis for implementing measures for promoting active mobility forms.

Keywords: social milieus; active mobility, walking cycling, persuasion

1 Introduction

Active mobility, i.e. walking and cycling, has the potential to effectively tackle several societal challenges regarding quality of life. Both non-motorized forms of transport are not only healthy on the individual level, as the WHO's Health Economic Assessment Tool demonstrates [1], they are also carbon-neutral, cheap and more space-saving as other modes of transport [2,3]. Still, the share of walking and cycling in the modal split of many cities is comparatively low, and it is of paramount importance to increase active mobility in order to reach climate goals and achieve a higher quality of life in cities.

Triggering behaviour change in mobility does not only require providing the adequate infrastructure (e.g. walkable environments, biking infrastructure), but also the willingness to change individual mobility behaviour patterns. In many cases, however, people are either not aware of walking and cycling alternatives to their common mobility habits, or the provided solutions and developments do not meet the expecta-

tions of people who then refuse to accept them [4,5]. It is therefore necessary to identify efficient ways for informing people about alternative options (particularly regarding active mobility) and at the same time present them in a way that the alternatives appear appealing and worth trying out for the addressed target group. Therefore, group-specific values and attitudes need to be investigated for revealing the most successful persuasion strategies and information channels for intended target groups.

The presented study focuses on the investigation and categorisation of diverse patterns of mobility-related behaviour and attitudes of users of mobility-related information in order to identify target groups who show homogeneous mobility behaviour patterns and require the same content of mobility-related information, or can be addressed via particular arguments for promoting sustainable mobility behaviour (e.g. health, environment, costs, image, or adventure). These persuasion groups are defined by classes of homogeneous information needs, which are to be used for the development of user-oriented information services and measures for promoting active forms of mobility.

Based on a comprehensive discussion of related work on target group segmentations in Section 2, the paper describes the methodology designed for this approach combining both qualitative-interpretative and quantitative-statistical methods in Section 3. Section 4 presents the results of the recently completed empirical analysis and discusses the outcomes with respects to existing approaches. The concluding Section 5 finally describes the next steps within the ongoing project and provides suggestions for application areas for the project findings.

2 Related Studies

Today, in transport research segmentation approaches are an established means for analysing daily travel behaviour. Also Transport providers and municipalities used segmentation approaches as a basis for targeted interventions to increase the use of sustainable transport modes. From a methodical point of view there are many different segmentation approaches existing in the field of travel behaviour, e.g. to identify specific target groups or for segmenting the population into definable homogeneous groups, respectively [6]. There are four basic classes of variables that have been used for segmenting the population for defining target groups in mobility research: travel behaviour, geographical-features, socio-demographic variables and attitude/value approaches.

The behaviour-based approach defines population segments by their actual travel behaviour, for example trip frequency, mode choice, or trip purpose [7]. In the German national travel survey [8] a combination of frequency of public transport, car, and bicycle use, car availability and accessibility is used to divide the population into seven user groups, for example ‘captive public transport users’.

Geographical approaches group people by aspects of their residential location, differentiating, for example, between people living in urban, suburban and rural areas. Such approaches are, for example used in national travel surveys to describe the mode choice of people in different spatial contexts. Other studies choose specific study

areas representing different settlement structures to examine the influence of neighbourhood characteristics on travel behaviour [9]. In addition to different geographical categories, continuous qualities of locations are often applied, for example ‘accessibility’ [10] or ‘walkability’ [11].

A frequently applied segmentation approach in transport research is based on sociodemographic or socio-economic and social stratification variables. Among these studies the most common sociodemographic categorizations are age groups or gender. Different life cycles or life stages can be differentiated by the combined consideration of household variables, age, and work status and income [12].

Some studies to promote active forms of mobility for specific target groups are based primarily on attitudes and value approaches. Attitudes and value or life style and milieu-oriented approaches were first integrated into mobility research in the end of the 1990s and are based on psychological or sociological theory [13]. There are two basic classes of attitude-based segmentations [14]:

- Mobility specific approaches or life style approaches based on mobility-related attitudes and preferences. These approaches focus on the analysis of orientations and behaviours that are relevant to the field of mobility. The distinction between types is based on features that relate to the observed field of action.
- Holistic approaches or milieu approaches based on the hypothesis that general values, beliefs and viewpoints are directly influencing all spheres of activity and do not relate to a specific field of action. The distinction between types is based on fundamental values and every day attitudes.

Although findings connecting mobility patterns to attitudes and values of specific types are able to provide deeper insight into the determinants of mobility behaviour, there is still little knowledge about how such attitudes towards different modes of transport evolve and how habits can be broken by addressing specific attitudes and values. Therefore, this study focuses on mobility related information, or how social groups communicate about mobility options. By understanding the origins of “images” of different mobility options and by analysing group-specific habits of information retrieval, it is possible to develop strategies utilising attitude-related motives for persuading specific groups to change their mobility habits.

3 Methodology

In order to identify and test groups of homogeneous attitudes and information requirements, a combination of quantitative and qualitative methods was applied in form of a multi-level approach:

- Desk research on classification models for mobility target groups
- Systematic categorisation of mobility-related information categories (e.g. pre-trip, on-trip, image)
- Qualitative data collection and analysis (focus groups) for identifying hypothetical types of attitudes and information requirements

- Quantitative data collection and analysis (online and telephone survey) for validating and quantifying the typology

The identification of types of information requirements were based on the two empirical phases. As a first step, the potential of mobility-related information in relation to different target groups were examined in the context of focus groups. The design of the focus group interviews was based on the results of the state-of-the-art analysis of classification models and information categories. The participants (eight persons per focus group) have been recruited from Sinus-Milieus® [15] in Austria. This segmentation model is based on sociological models describing communities of basic values with shared attitudes concerning different aspects of everyday life (e.g. work, leisure, social relationships, consumption, politics etc.). Figure 1 illustrates the 10 Sinus milieus identified for Austria in 2013. The focus groups have been composed of representatives of neighbouring milieu groups from the Sinus model and were conducted in three different regional contexts (metropolitan, urban, rural). During the group discussion, different aspects of mobility and usage of information were elaborated (e.g. mobility patterns, image of different mobility options, familiarity with different mobility information services and campaigns, new mobility options, etc.). The resulting preliminary information types were subsequently used as a hypothesis for the quantitative survey.

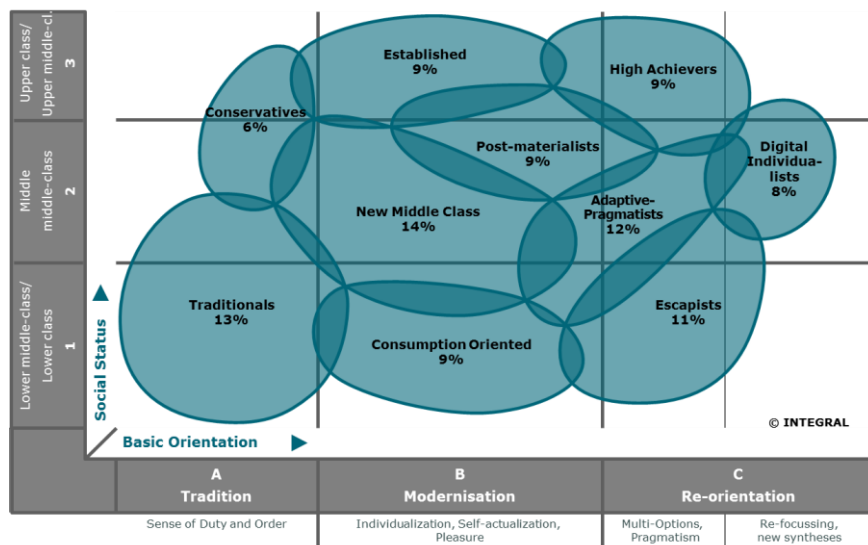


Fig. 1. Sinus Milieus in Austria 2013 [16]

In the subsequent quantitative phase the hypothetical information types which emerged from the focus groups were used as a basis for designing a survey among the Austrian population. The data collection was carried out partly by telephone interviews and partly through an online survey with a total sample size of 1,000 partici-

pants which is representative for the Austrian population aged 14 and above. The duration of the interview was 35 minutes and the content ranged from demographic data, general mobility behaviour, choice of alternative means of transport, criteria for the choice of transport mode, image of the transport mode, statements for the creation of information types, information needs and information gathering to the perception of campaigns. The main goal was to identify people willing to change transport modes on one hand and to elaborate the basis for a type-appropriate communication strategy on the other hand.

The segmentation itself was conducted via a four step approach. After the items with information relevant statements were selected, profiles on the basis of the focus group results were derived. Based on this step profile averages have been calculated in order to obtain seeds for the following cluster analysis. The last step contained the standard assignment of respondents to the segments by k-means cluster analysis.

4 Results

4.1 Qualitative Analysis

The analysis of focus group interviews resulted in six different types of attitudinal patterns and information habits. The groups are defined by dominant attitudes towards different modes of transport and related images of transport options as well as principle information sources being used by the groups. In addition, major mobility behaviour patterns of the groups are described. Table 1 provides an overview about the main outcomes concerning characteristics of the hypothetical types of information requirements and mobility attitudes.

Table 1. Hypothetic types of information requirements and mobility attitudes.

	on-the-go fun type	eco-informed type	efficient on-the-go type	Conservative efficient type	efficient habits type	low mobility literacy type
Mobility style	multimodal, flexible, urban	public transport, bike, walk	different options, stable	stable behavior, but open minded	habitual behavior	fixed patterns
Motivation	efficiency, flexibility, experience	responsibility sustainability awareness	efficiency, rationality, planning	pragmatic, reliability, novelty	costs, planning, stability	security, costs, stability
Information needs	on-trip, mobile information, apps	pre-trip multiple information sources	frequent new trips, high demand, new media	pre trip information, on-line or print, hardly apps	little demand for information, mainly routine trips	no demand for information, reduced mobility
Attitudes towards walking	only if they can save time (,boring')	very positive: slow mode, experiencing	inefficient, too slow and too ,green'	principally positive, but for leisure	only for those who have time	cheap transport mode
Attitudes towards cycling	freedom, individuality, avoid public transp.	positive: eco-friendly, but others too aggressive	positive, trendy, status, faster than car	only for leisure, bad image of cyclists	positive as sport, not for normal trips	negative image (political disapproval)
Interest in sharing	high	middle	high	low	middle	low

4.2 Quantitative Analysis

The circumscription of the results from the qualitative and the quantitative survey originated in six information types: 1) Spontaneous – On the Go, 2) Highly Informed Sustainability, 3) Efficiency-oriented Information Pickers, 4) Interested Conservatives, 5) Low Demand, 6) Digital Illiterates. The types show strong resemblances to the initial, hypothetic types, confirming the validity of the identified information types. Figure 2 illustrates the resulting information types, their main characteristics and their relation to the Sinus Milieus, as well as the distribution of the types in the Austrian population. Based on the data collected in the survey, the types are defined by mobility behaviour patterns, attitudes towards different mobility options (including new concepts), information retrieval habits and preferred information channels, regional attachments, and openness towards mobility transitions.

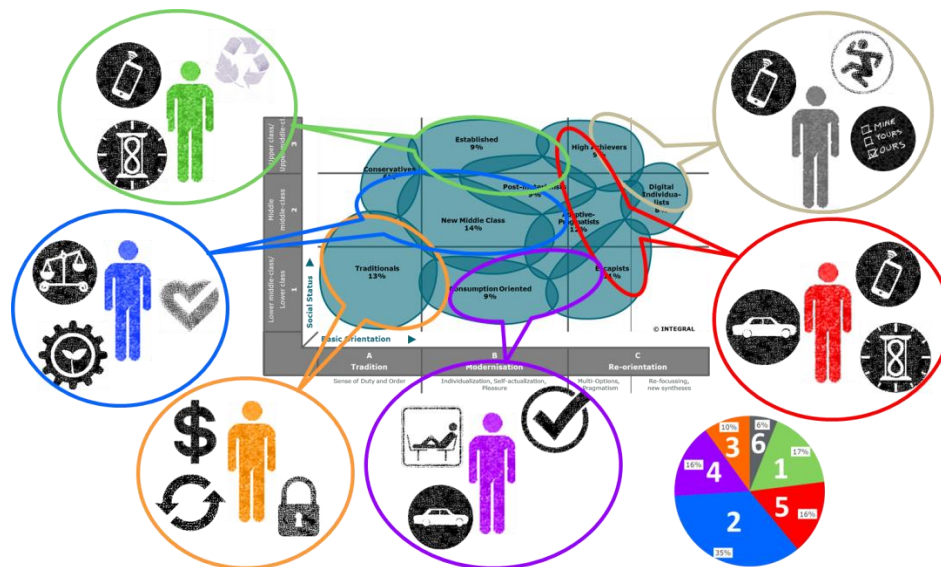


Fig. 2. Resulting information types and their relation to Sinus Milieus (counter-clockwise, starting top left corner): 1) Highly Informed Sustainability (green), 2) Interested Conservatives (blue), 3) Digital Illiterates (orange), 4) Low Demand (purple), 5) Efficiency-oriented Information Pickers (red), 6) Spontaneous – On the Go (grey). The pie chart shows the distribution of the types in the Austrian population (numbers refer to type numbers).

The main characteristics of the identified information types are now briefly described.

Spontaneous – On the Go. About 6% of the population are assigned to this young and urban type. This type is very mobile, flexible, hardly influenced by routines, interested in innovations in the mobility domain, open towards new mobility concepts (e.g. sharing). The internet and smartphones are frequently used, information is re-

quested on demand, and hence there is hardly any interest in conventional printed information material.

Regarding mobility behaviour, this type uses the car to gain flexibility but does not insist on car ownership. The bicycle has a very good image since it is efficient, reliable and inexpensive as well as healthy. The environmental perspective is less important. Active mobility modes are regarded as eco-friendly and calming but not efficient and comfortable. Public transport is more popular due to security and modernity and is seen as a reasonable transport mode. This type does not favour specific transport modes but rather chooses the appropriate means or transport depending on the current situation.

Highly Informed Sustainability. This type (about 17% of the Austrian population) is also based in urban environments among young and middle aged, well-educated people. They want to be comprehensively informed and require information anytime anywhere. Sustainability is an important factor for their mobility decisions. Even though daily trips are usually planned in advance, this type demands flexibility in order to maintain personal contacts. They are very interested in socio-political issues and therefore interested in alternative forms of mobility.

Despite their eco-awareness, the car as a transport mode is sometimes needed (e.g. for shopping) and has to be available, although car ownership is not required. The usage of the bicycle is above average, but mainly when the weather is appropriate. The image of cycling and walking is good and also the usage of public transportation is above average and seen as efficient and modern.

Efficiency-oriented Information Pickers. This type (16%) often does non-routine trips and therefore requires a lot of mobility information. Also mainly based in urban environments among young and middle-aged citizens, persons in this category are very mobile but with relatively stable mobility habits. Individuals assigned to this type are car-lovers and hardly interested in socio-political aspects or sustainability arguments; they are driven by efficiency. Mobility information has to be available on demand and digitally. All forms of digital aids are used gaining information, and conventional information material is classified as inefficient. Background information is only interesting if it gives a measurable advantage.

This type predominantly tends to use the car since it is regarded as fast, efficient, cool, reliable and comfortable. Car-sharing concepts are also used above average since they are classified as useful. The image of cycling is however not very good due to the perceived lack of fun. Hence, walking is preferred towards cycling and labelled as environmental friendly, inexpensive, calming and neat. On the other hand walking is not perceived as cool, efficient or comfortable. The image of the public transport is good even though it is not neat and efficient enough.

Interested Conservatives. With a share of 35% in the population this type is the most widespread information type in Austria. In contrast to the previously introduced types, this type has no geographical focus and is of moderate to older age. The mobility

behaviour is more or less stable with individual subjective preferences. The need for information is mediocre; new routes are planned in advance and information being used is often printed. The individuals are nonetheless interested in technological developments and innovations (e.g. in terms of sustainability and environmental protection) but hesitant to use them. They tend to care about social responsibility issues and are open to arguments relating to this aspect.

Car usage is average and this type tends to fear bad weather conditions because of safety concerns. E-bikes are rather widespread but mainly used for leisure. The image of the bicycle is overall very good and attributes such as modern, cool, calming and environmental friendly are named. Walking is also positively assessed although this type tends to state that walking needs too much time and is mainly for retirees. Public transportation is used below average but has a good image.

Low Demand. 16% of the Austrian population can be assigned to this type. Persons with low demand have moderate to older age in larger cities but can be younger in smaller cities. Their mobility behaviour is very stable; hence the need for information is low since this type mainly follows routines. Necessary information is obtained through face-to-face contact. There is little interest in technical developments in the field of mobility or environmental protection.

This type needs his/her own car which is used regularly. In particular on the countryside a sentimental attachment to the car can be found. The image of the car is very good since it is regarded as reliable, safe, barrier-free, flexible, comfortable, cool, modern, calming and independent from weather conditions. Active modes are categorized as a leisure activity and public transportation is solely used to commute or for short paths. Sharing concepts are not interesting.

Digital Illiterates. This type contains 10% of the Austrian population. For this information type mobility is an issue of affordability and therefore limited. They see little need for information but are prone to information gaps and misinformation. They mainly take familiar trips, require hardly any information about mobility and are not interested in environmental issues or technical innovations. They are overwhelmed by digital media and therefore prefer personal contact in the information collection process. Unfamiliar trips are often done without any information.







The car has a very good image but the distances travelled by car are significantly below the Austrian-wide average, which is also the case for all other modes of transport. This type cannot be reached with sharing concepts. Walking is not perceived as a proper type of movement as it is considered too slow even though it is seen as more fun than cycling. The image of the bicycle is relatively good; public transport is only used for short distances.

4.3 Type-related Persuasion Strategies

Based on the results of the empirical analysis, concepts for persuasion strategies are currently being developed for each of the identified information types. At the same

time, the potential effectiveness of persuasion strategies is assessed, as not all of the types are equally willing to change their habits. Table 2 compares the types in relation to their willingness to change and appropriate arguments and information sources.

Table 2. Selection of findings for the development of persuasion strategies for the identified information types.

	Spontaneous – On the Go 	Highly Informed Sustainability 	Efficiency-or. Information Pickers 	Interested Conservatives 	Low Demand 	Digital Illiterates 
Willingness to change	high	high	low	middle	close to zero	close to zero
Arguments	fun, creativity, flexibility, individuality	rationality, sustainability, costs, health	efficiency, health, costs	role models, social responsibility	costs, health	costs
Appropriate apps	creative and gamified	useful information, environment	no particular	hardly using apps	no use of apps	no use of apps
Appropriate campaigns	funny, playful	environmental responsibility	no particular	responsibility, fitness	no particular	classic campaigns
Specific information interests	new concepts	time efficiency	cycling infrastructure	cycling infrastructure	park and ride systems	sharing, pooling

5 Conclusions and Further Work

The quantitative and qualitative analysis of mobility patterns, information retrieval habits and social values resulted in reproducible types of information requirements, which form a valuable basis for identifying successful strategies to encourage active mobility in the target groups. The outcomes also disclose the potential success of related strategies in the different types and support the allocation of resources to most effective measures. Currently, the strategies are elaborated in more detail and arranged in a cross-table connecting type-related strategies to different categories of mobility-related information, which will be provided for municipalities and transport providers for developing type-specific measures for encouraging active mobility.

The results of the comprehensive and representative analysis of information requirements of social groups also allow the incorporation of these groups in coming research and development of projects to foster effective persuasion strategies to initiate a shift toward sustainable and active mobility.

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