

WALKING – THE WORRIES OF PEDESTRIANS¹

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Abstract

Walking is the most natural way of moving. It is an expression of some kind of well-being. Walking is healthy and vital. It is the basis of our mobility, the mother of all transport modes. Despite the positive effects of walking the share of pedestrians is steadily declining in the last years not only in Austria. The reasons are diverse. Decoupling the working environment from the living environment, a lack of a good public transport system increased the popularity of cars. On the other hand poor walking infrastructure like narrow pavements, the missing of crossing facilities etc. are aspects which make walking unattractive and even dangerous. The project "Bef(w)usst unterwegs" aimed at determining factors, which make walking a pleasant, safe and attractive transport mode. The study gives some hints how to improve walking conditions. In this paper the results of this study are summarised.

¹ The article is based on the paper of Ausserer K., Braguti I., Füssl E., Höfferer G., Risser A., Risser R. 2009: Bef(w)usst unterwegs: Fußgängerstudie in Wien, geförderte Studie des BMVIT, Wien

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Introduction

Walking is a crucial element of our everyday mobility. It is the glue of the transport system. It connects the different traffic modes and keeps the traffic system together. Despite the positive effects of walking the share of pedestrians is steadily declining in the last years not only in Austria. The reasons are diverse. Decoupling the working environment from the living environment, a lack of a good public transport system increased the popularity of cars. On the other hand poor walking infrastructure like narrow pavements, the missing of crossing facilities etc. are aspects which make walking unattractive and even dangerous.

Walking, however, is often taken for granted. This has the effect, that the needs of pedestrians are considered of minor importance. Speeding of car drivers, narrow pavements, the missing of crossing facilities, etc. are aspects which make walking unattractive and even dangerous. Pedestrians are the group of road users with one of the highest accident risks. If you want to make people walk more often an increase of the objective safety and of the security of pedestrians are important.

The project *„Bef(w)usst unterwegs“* (Consciously underway {on your feet}) was the national contribution to the COST Action 358 (Pedestrian Quality Needs) and was co-financed by the Austrian Ministry of Transport, Innovation and Technology. The aim of the project was to determine those factors, which make walking a pleasant, safe and attractive transport mode.

Aims of the project

The project *„Bef(w)usst unterwegs“* (Consciously underway {on your feet}) has the following main aims:

- The assessment of the situation of pedestrians in the previously selected Viennese districts 6., 7., 21. and 22. regarding traffic safety (objective and subjective safety). Therefore the status quo was evaluated e.g. How safe do pedestrian feel themselves? What are the safety problems?
- The assessment of the situation of pedestrians in these districts regarding quality of live and quality of living. Topics in context were mobility, comfort, respect etc.
- Elaboration of recommendations which should be taken into account when planning safe and attractive pedestrian infrastructure.

Methods

Several empirical methods were used in combination, in order to get more information about those issues, which are relevant to make walking safe and attractive. It is important to know the current traffic safety situation, if you want to implement effective traffic safety measures.

- Thus, in a first step pedestrian accidents in Vienna from 2000-2005 were analysed.
- A lawyer considered the juridical aspects of walking as a transport mode from the Austrian point of view.
- With the help of two focus group interviews attractors and barriers were identified.
- In order to be able to make statistically valid conclusions concerning the results of the focus group interviews 163 face-to-face interviews with road users were carried out. In the survey people were asked to tell their opinion about pedestrian related issues at six different crossings in Vienna.
- In addition to the survey a behaviour observation (18 hours) took place to get an impression about conflict situations with pedestrians in traffic. Part of the behaviour observation was video taped.

- Finally a workshop with experts of several disciplines (traffic planners, sociologists, psychologists, walking lobbyist, landscape architects) the results of the empirical studies were discussed and proposals for solutions were developed.

Results

Walking a safe transport mode for the other road users

In Austria the number of road accidents permanently declined in the last years. Comparing the data for pedestrian accidents only, one realises that the number of pedestrian accidents have stagnated since 2005 (Statistik Austria 2009). In absolute numbers three times more pedestrians than car drivers were involved in an accident in Vienna in the time from 2000-2005. In addition, 15 times more pedestrians than car drivers were seriously injured or killed when involved in a traffic accident. Vulnerable road users are mainly endangered by car drivers. An analysis of accident data with respect to perpetrator and causality showed that car drivers who cause an accident injure or kill 50 times more road users than pedestrians causing an accident (see figure 1). Furthermore no single case was registered, where a road user was killed by a pedestrian.

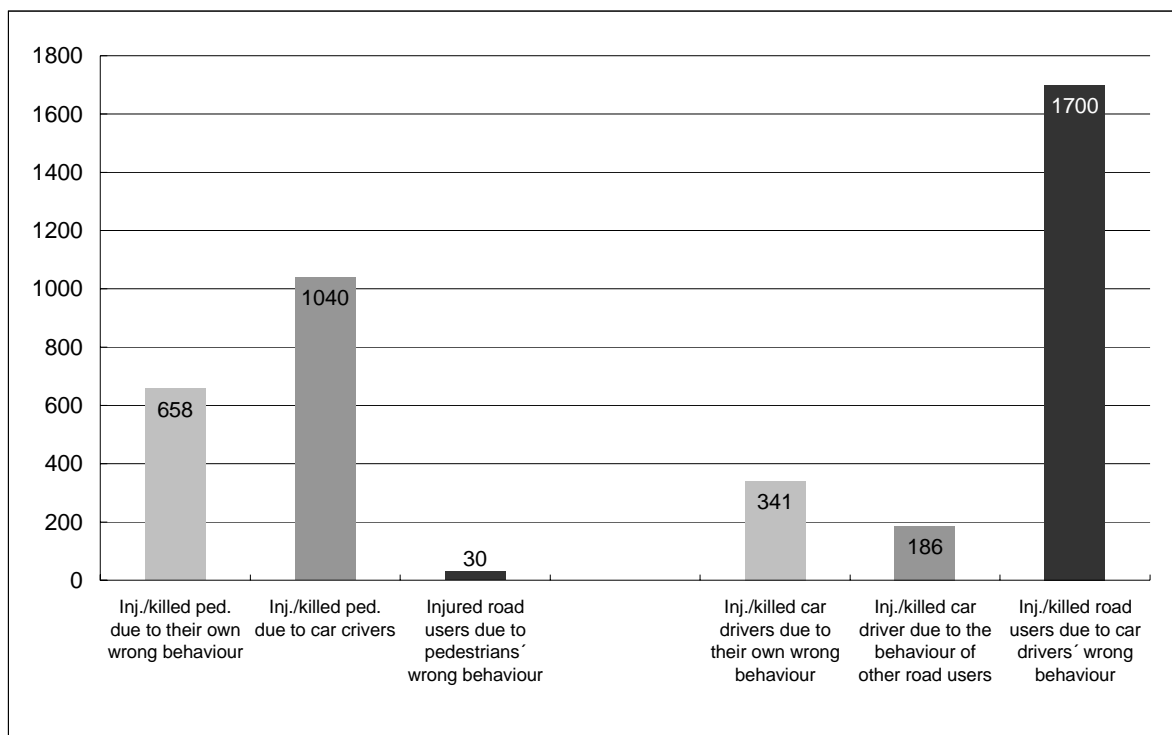


Figure 1: Road accidents –Causer and victims in Vienna 2000 - incl.2005; seriously injured and killed pedestrians and car drivers (calculation by A. Risser 2009; as cited in Ausserer et al. 2009)

Pedestrians play a minor role in the law

In the Austrian traffic law (Straßenverkehrsordnung) pedestrians play a minor role. They are not even defined in the glossary (§2 StVO). Paragraph 8, where pedestrians are mentioned the first time, is stating the rules and duties of pedestrians (using the pavement, are not allowed to step surprisingly on the road etc.). Other regulations with the aim to protect pedestrians are wide spread over the law. These regulations can be found in the paragraphs regarding traffic lights, pedestrian crossings etc.

Furthermore, from a juridical point of view a single person has hardly any possibility to call for pedestrians' rights and interests and to see to it that public institutions take their responsibility.

Walking a transport mode with many positive attributes

Despite the high accident rates in the survey it turned out that walking is considered as safe by the majority of the respondents. If you ask people what they associate with walking spontaneously, you get answers like a health-promoting reliable, environmental-friendly, flexible and communicative transport mode (see figure 2).

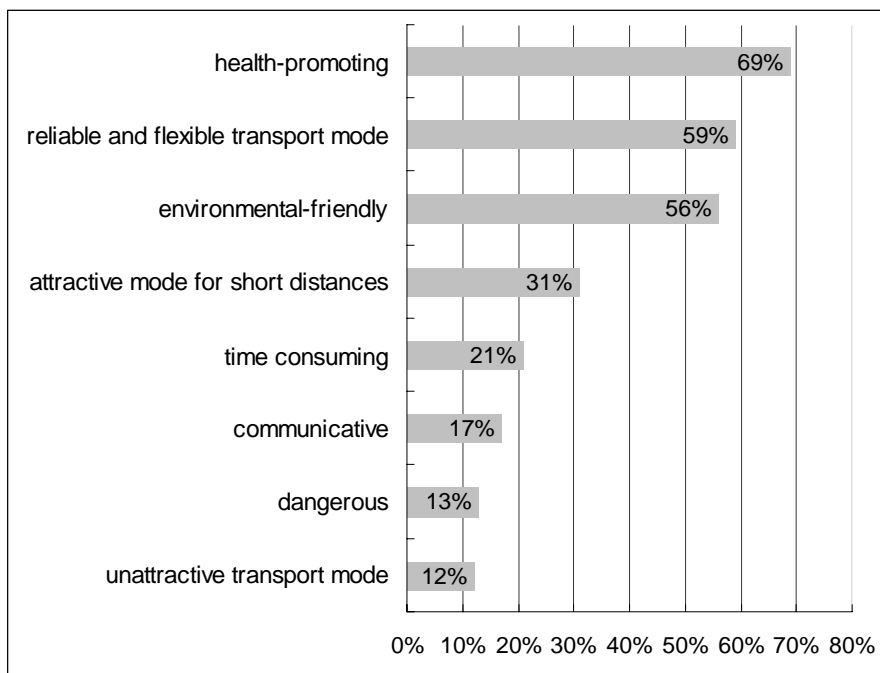


Figure 2: Associations with walking

In the survey only 13% of the respondents considered walking as dangerous. People, younger than 25, however, mentioned dangerous significantly more frequently (32%) than the other age groups. This might be due to the fact that the number of children and teenagers is increasing, who are brought to school or to leisure time activities by car. They are not used to walk on their own and might experience walking as unsafe. In general walking is considered as less safe for children than for adults. In the survey crossings which were evaluated as relatively safe for oneself were scored as precarious for children.

When do pedestrians feel unsafe?

Even though dangerous is not spontaneously associated with walking, safety plays a very important role with respect to the attractiveness of walking. In the survey many aspects were regarded as inconvenient and dangerous while walking. In the following the most important aspects are summarized.

- ***Speeding by car drivers, viz. inappropriate speeds***

Speeding viz. inappropriate speed is one of the main reasons for fatal accidents. In Austria 33% of all fatal accidents are caused by speeding viz. inappropriate speed (figures of the year 2006, as cited in KfV, 2010). So the driving speed has a very large effect on road safety. The speed at the time of collision is the key determinant for the kinetic energy the human body is exposed to in a

crash. The probability for a pedestrian to survive in a car accident is more than 5 times higher if the driving speed is 30km/h and not 50km/h (see figure 3).

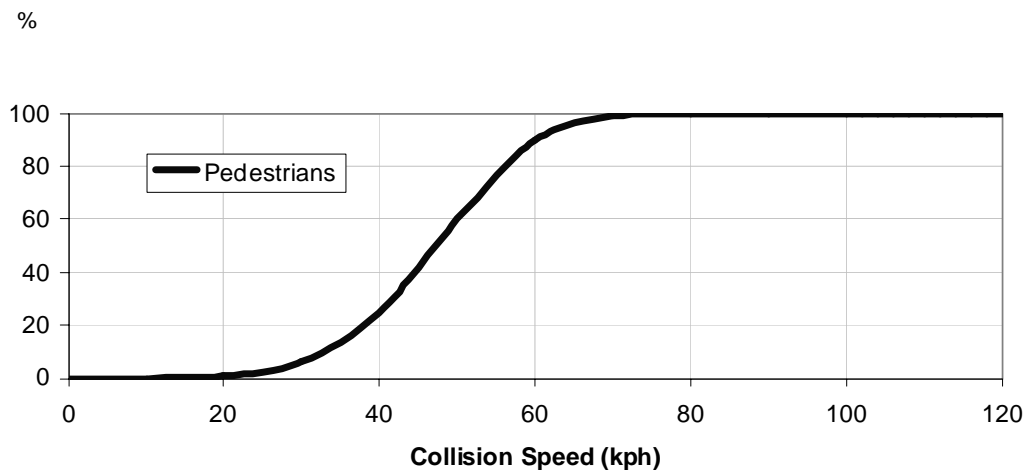


Figure 3: Collision Speed and the probability for pedestrians to die in an accident (Gunnarsson 1995)

In the survey 60% of the respondents mentioned that they are often confronted with speeding car-drivers. 74% felt endangered by car drivers, who were speeding.

- ***Ignoring the right of way of pedestrians by car drivers***

In the observation it turned out that pedestrians hardly ever comment verbally or by gestures the behaviour of car drivers, who ignore their right of way. Ignoring the right of way, however, is perceived as nasty and annoying by pedestrians. In the survey 47% of the respondents stated that it often happens that car drivers ignore their right of way. 68% felt unsettled and endangered by such a behaviour. According to an Austrian study only 40% of the car drivers stop at zebra crossings to give pedestrians the right of way (KfV 2010). The willingness to stop at zebra crossings drops up to 10 percent with increasing speed.

An analysis of the video taped observation indicated that car drivers often force pedestrians to let them go first by turning quickly if a pedestrian approaches a zebra crossing or by tailgating when turning so that there is no possibility for pedestrians to cross between two or more turning cars.

- ***Red light running by car drivers***

Red light running is a common traffic violation by all road users. In the observation car drivers crossed in average every third minute at red light, pedestrian nearly every 1 ½ minutes. In the survey 13% of all respondents were annoyed by pedestrians who crossed the road while it was red, but 62% mentioned that they felt unsafe, when cars crossed the road at red light.

Car drivers perceive the environment differently than pedestrians. Their vision and sense of hearing is reduced. The probability of hitting a pedestrian who just started crossing is thus quite high for car drivers. For pedestrians on the other hand it is sometimes safer to cross the road at red light (narrow road, a big time gape between approaching cars), as they are not confronted with left or right turning car drivers.

- ***Pedestrian unfriendly traffic signals***

Long waiting times increase the probability of red light running. Short crossing times lead to stress and make children and elderly people insecure while crossing. In the survey about one third of all respondents complained about long waiting and short crossing times.

- ***Unattractive surrounding***

Unattractive surrounding is characterised by various aspects like narrow pavements, heavy car traffic, noise, fumes watching out for dog excrements, huge areas reserved for cars, the missing of green areas are considered as annoying and discomfort while walking. In the survey the interviewees were asked to mention the three main aspects, which make walking unattractive. 50% of the respondents complained about dog excrements on pavements, 41% were irritated by traffic noise, fumes and missing of green elements. 26% regarded barriers on pavements like traffic signs, dustbins and car partly parked on the pavement as discomfort while walking. 20% did not appreciate joint walking and cycle paths.

- ***Lack of interaction***

In an interaction analysis of the video-taped observation it turned out that smooth crossing of a road is reflected by getting in contact with others and interact with them. The following aspects were identified which influence the crossing situation for pedestrians positively respectively negatively.

Table 1: Positive & negative aspects while crossing

<i>Positive</i>	<i>Negative</i>
<ul style="list-style-type: none"> - <i>low speeds</i> - <i>a good visibility of pedestrians</i> - <i>eye contact between road users</i> - <i>gestures like hand signals, head signals, flashing one's light</i> - <i>a self-confident behaviour, claiming one's right of way by gestures and eye contact</i> 	<ul style="list-style-type: none"> - <i>high speeds</i> - <i>bad visibility of the car traffic</i> - <i>to look the other way/ to look on the ground</i> - <i>refusing to communicate with other road users</i> - <i>tail gating of car drivers</i> - <i>blocking of zebra crossings</i>

Measures increasing the attractiveness of walking

In the expert workshop various solutions and measures were mentioned which have the potential to increase the attractiveness of walking. The measures mentioned can be subdivided into infrastructural measures, awareness measures and measures referring to law changes.

- ***Infrastructural measures***

Measures, which were discussed in the workshop on the infrastructural level, are well known and frequently discussed in literature. The experts mentioned measures like reducing the waiting times for pedestrians. The time for crossing should be adapted to the needs of the weakest road users (e.g. old people, small children). In general in traffic planning children should be called on as indicator with respect to traffic safety of pedestrians. Speed limits should be combined with

infrastructural measures (e.g. speed humps, road constrictions). Pavements broadened, car parks reduced.

- ***Awareness measures***

On the awareness level it was suggested to make information and awareness campaigns for walking. Exhibitions about recent changes in the pedestrian traffic, competitions (e.g. the friendliest pedestrian), walking street festivals might increase the awareness of the population that something is done for the needs of pedestrians. At the same time walking is on the spot of politicians. In order to improve the general traffic culture, a general image campaign "together instead of against each other" might be launched. A considerate driving style, giving right of way to pedestrians could be advertised as cool behaviour. Road traffic training for elderly people might increase the safety of this population group. Further education programmes with respect to various traffic related topics for employees in municipalities might help to motivate employees to promote walking on the municipality level.

- ***Measures referring to law changes***

In Austria a shift in the burden of proof in case of an accident (the car driver has to prove that he did not act carelessly) would improve the legal situation for pedestrians. This might change the driving behaviour of car drivers and improve the traffic safety of pedestrians. In order to make it possible to introduce new traffic models like shared space or encounter zones some legal changes have to be made. Stricter enforcement and higher penalties for speeding, parking illegally etc. might also change the traffic behaviour of car drivers.

The study gives some hints, how you can improve the situation for pedestrians. For the future it is important to provide money for pedestrian infrastructure to appoint competent persons, who are responsible for pedestrian issues, to make pilot projects and to evaluate measures for pedestrians.

Discussion

Pedestrians are the group of road users with one of the highest accident risks. If you want to make people walk more often an increase of the object safety and of the security of pedestrians is important. Several empirical methods were used in combination, in order to get more information about those issues, which are relevant to make walking safe and attractive.

The results of the accident analysis had shown that in absolute numbers three times more pedestrians were involved in an accident than car drivers in Vienna in the time from 2000-2005. In addition 15 times more pedestrians than car drivers were seriously injured or killed in the cause of a traffic accident. Vulnerable road users are mainly endangered by car drivers. Whereas pedestrians basically harm themselves, if they cause an accident, car drivers predominately injure other road users.

From a judicial point of view, pedestrians play a minor role in the traffic law and furthermore a single person has hardly any possibility to call for pedestrian`s right and interests.

In the survey it turned out that walking is considered as safe despite the high accident rates. Adolescents aged between 15 and 25, however, more often than people above 25 think that walking is dangerous.

In the survey and in the observation the following aspects were regarded as inconvenient and dangerous while walking.

- **Unattractive surroundings** are characterised by dirty pavements (e.g. dog excrements), narrow pavements, heavy car traffic, noise, huge traffic areas reserved for cars, missing of green elements etc.
- **Disadvantageous traffic light regulations for pedestrians** like long waiting times, short crossing times increase the probability of red light crossing.
- **The missing of zebra crossings or other crossing aids next to public transport stops** lead to unsafe and even dangerous crossing behaviours of pedestrians.
- **Exceedance of speed limits by car drivers** are considered as very displeasing
- **Red light running by car drivers** is dangerous for other road users.
- **Ignoring a right of way of pedestrians by car drivers** are perceived as nasty and annoyance.

Finally based of the information gather with the help of the different methods the following solutions can be proposed:

Problem	Measure
<p>Missing of information campaigns Implemented measures for pedestrians are hardly advertised. Thus a broad part of the population is not aware of those measures.</p>	<p>Information campaigns topic: pedestrian traffic Exhibitions in various districts, competitions, street festivals increase the awareness of the population that the government, the municipality do something for pedestrians.</p>
<p>A lack of traffic culture The lacking of a traffic culture is characterised by ruthless car drivers, breaking of traffic rules, egoistic behaviour (e.g. dog excrement problematic)</p>	<ul style="list-style-type: none"> - "Together instead of against each other" A considerate driving style, giving right of way should be advertised as cool behaviour. This is one possibility to improve the traffic cultur of all road users. - Increase enforcement – consequent punishment –

Problem	Measure
	<p>If you increase enforcement with respect to traffic rule violations by car drivers (e.g. red light running, neglection of right of way) you will change the driving behaviour of car drivers and you will increase the safety of pedestrians.</p>
<p>The complex road Traffic planners start from the assumption that the road should be self-explanatory. Traffic is becoming more and more complex; the number of traffic signs is increasing. Children and elderly often feel overstrained by road traffic.</p>	<ul style="list-style-type: none"> - Road traffic training for elderly people In a practical road training elderly have the possibility to get information about the rights of pedestrians and how to walk around safely. - Reformation of the current traffic education The current traffic education will be standardised. Topics which have to be dealt with in traffic education are defined.
<p>Missing of programs to reduce accidents involving pedestrians There are no longitudinal programs which aim at decreasing the number of accidents involving pedestrians.</p>	<ul style="list-style-type: none"> - Traffic safety campaigns for pedestrians Pedestrians are in the focus of future traffic safety campaigns. - Improving the judicial situation for pedestrians The highway code is analysed with respect to pedestrian related issues. New laws are enacted which improve the safety situations for pedestrians and other laws are eliminated. - Reformation of collecting accident data Experts of different disciplines check the current way of collecting accident data. New criteria will be defined.
<p>Lacking of human and financial resources There is a lack of people in municipalities who are responsible for pedestrian issues. In addition there is a lack of financial resources.</p>	<p>Take the prioritisation of pedestrians serious In the traffic plan of Vienna it is stated that pedestrian traffic has to be prioritised. This can only be guaranteed if more people will be in charge of pedestrian issues, if you increase the budget for pedestrian infrastructure, etc.</p>
<p>Inflexible structures in the administration and on district level Many measures fail on a lack of awareness of the importance of pedestrian issues. There is no analogy to car drivers` need who are often immediately considered.</p>	<p>Further education for employees in municipalities and other people responsible for traffic Employees of municipalities are offered further education with respect to various traffic related topics. This will help to motivate employees to promote walking on the municipality level. .</p>

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