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Can one make walking and cycling more attractive without causing safety problems?

1. Introduction

WALCYNG[1] was a project carried out in the 4th framework programme of the EU, in the area of Urban transport (DGVII). Measures should be developed in order to convince people to walk and to cycle instead of using the car for short trips (> 5km for cycling, > 1km for walking).

2. The marketing approach

A marketing approach was chosen to do this work (for a general overview over the concept of marketing see Kotler et al. 1996). The consortium, consisting of partners from eight European countries, started by surveying what products exist and what efforts are made for walcers[2] . Partly, a check was made to see how many potential walcers exist in Europe (i.e., how many people use their car for journeys of less than 5km). The next step was to compare the features of the listed products and efforts to the features wished for by the potential walcers. This was done partly on a more theoretical basis - by studying literature on the topic - and partly by interviewing potential walcers. In addition, we also interviewed practicing walcers:

Our assumption was that walcers would tell us about their experiences, whereas potential walcers would tell us their assumptions, prejudices or stereotypes. Critical comments from walcers could lead to products´ or efforts´ adjustment and/or improvement. Critical comments from potential walcers would have to be answered by adjustments and/or improvement of communication and advertising.

3. The most relevant user needs

More precisely, we should talk about the most relevant motivational aspects for users and potential users. The table below shows what aspects associated to walking and

TABLE 5: ***DISADVANTAGES AND ADVANTAGES OF WALCYNG SEEN FROM THE CUSTOMERS' PERSPECTIVE***

road users	advantages of cycling	disadvantages of cycling	advantages of walking	disadvantages of walking
car drivers	• cycling is fun • it is healthy • you get fresh air	• you cannot carry heavy things • the cycle network is incomplete • you depend on good weather	• it is healthy • it is environmental friendly • you get fresh air	• it takes a lot of time • you cannot carry heavy things • you depend on good weather
walcers	• you are flexible and independent • it is healthy • it is economically efficient	• the cycle network is incomplete • high speed of car drivers • lack of secure parking	• it is healthy • you get fresh air • easiness (no parking problems, etc.)	• it takes a lot of time • you cannot carry heavy things • feeling of insecurity during night time

[1] WALking and CYcliNG instead of short cor trips
[2] „walcers" is a word for „walkers" and „ciclists"

cycling are considered positively, and what aspects are considered as difficulties. "Difficulties", in the case of walcers, make life difficult, and in the case of potential walcers, they deter from walcyng.

Hakamies-Blomquist (1996) concludes from literature studies that the following aspects are relevant for walcers from a motivational point of view:

- A problem related to *Social Values* is the low status of walcyng, especially when compared with driving a car. Also, the nature of the interaction between different road users is highly influenced by social attitudes.
- *Health:* Cycling is good for the health but cannot be done without good basic health.
- A*estetichal problems* evolve as pedestrians and cyclists have time to look around and really get to know the environment. A green environment is particularly valued. Noise from surrounding traffic and pollution are experienced as aesthetic *and* health problems.
- *Comfort:* Since walking is not only a means of transport, but also a way of socialising etc., it is important that there is special provision of benches, waste-baskets, shelters and public toilets, etc.
- The main *Mobility problem* of cyclists is the lack of a continuous and good quality cycle path network.
- *Security:* Security (= experienced safety) does not always correlate with objective safety. To increase the experienced safety of walcers, cyclists should be separated from cars, and pedestrians should be separated from both cars and cyclists. On the other hand, personal security is threatened if walcers are too isolated, especially if the illumination is not sufficient.
- Unlike car drivers, walcers are in many countries not offered any financial support. Moreover the relative inexpensiveness of cycling is threatened by bicycle theft.

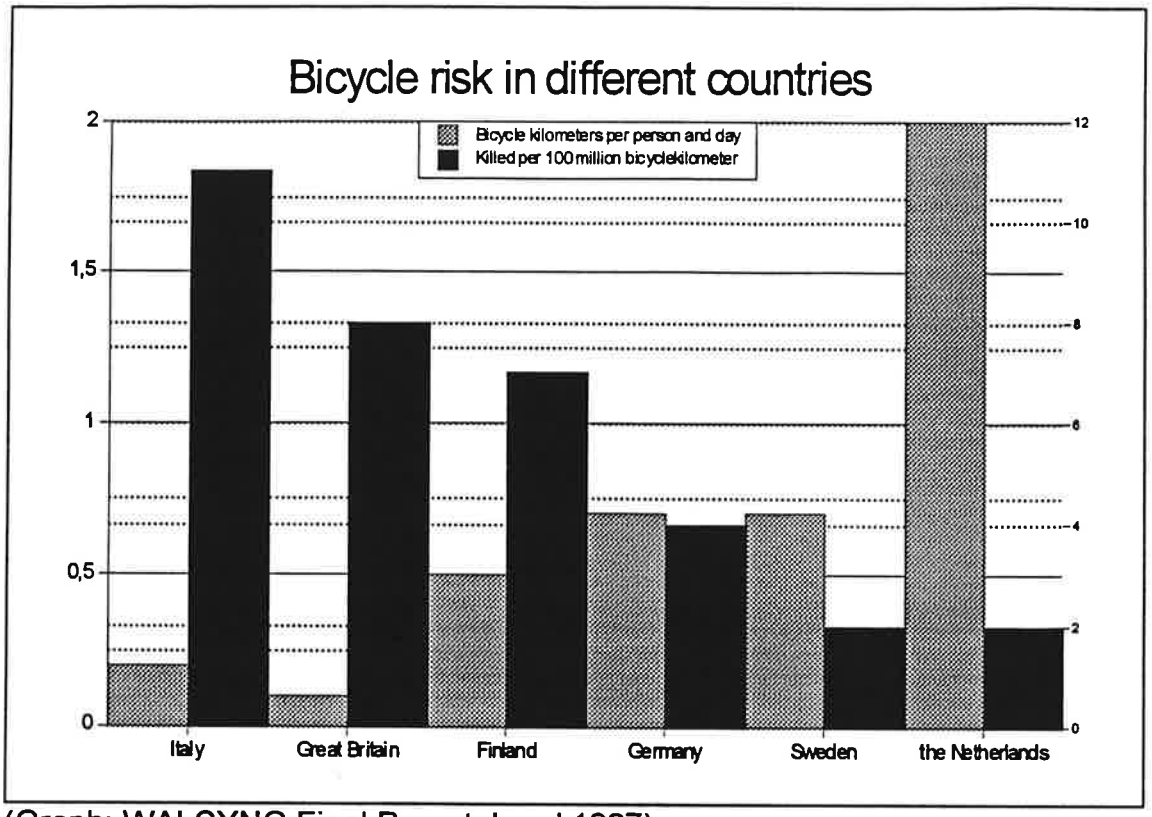
4. The role of safety

Safety as it is seen or experienced by the user, was called security in the WALCYNG work, and refers to what is, in the literature, sometimes called subjective safety. However, the discussion here does not loose in accuracy, if we simply talk of „safety".

Obviously, lack of safety is not felt so strongly by walcers nor by potential walcers and thus, safety issues do not get number 1 priority. However, safety is a problem for the authorities: The individual risk for walcers is rather high when compared to the individual risk of car drivers. It would, of course, be a problem, if one made a lot of people change to walcyng instead of driving a car and then accident numbers were to go up.

There are some results that indicate that, without any extra precautions, accident numbers would not go up linearly if the number of walcers increased considerably (Pasanen 1996, Ekman 1996; see table below).

Moreover, there is an indication that there are safety enhancing measures for walcers that would, at the same time, make walcyng more attractive.



(Graph: WALCYNG Final Report, Lund 1997)

5. How to make walcyng more attractive and safe

Many elements of the traffic process are relevant for walcers´ safety. I want to address three of them that have been considered as having high priority and to show that shaping them in a way that leads to better safety could also improve attractiveness of walcyng:

1. The interaction between pedestrians and cyclists
2. The interaction between motorised car traffic and walcers
3. Vehicle speeds

5.1. Interaction between pedestrians and cyclists

It has been shown that many minor accidents result from the interaction between pedestrians and cyclists (see Pasanen). This problem, however, is to a large degree the consequence of lack of space for these two groups so that they have to share the same areas, often under very restricted conditions. Giving walcers more space would allow better separation between the modes and thus not only improve safety, but also the attractiveness of walcyng.

5.2. Interaction between cars and walcers

Many accidents between cars and walcers occur where cars are turning left or right, thereby crossing walcers' paths. In WALCYNG it has been argued that car drivers are not afraid of walcers. Nobody really wants to knock down a walcer, but, nevertheless, the lack of any threat for the car drivers in their interaction with walcers facilitates nonchalant behaviour. *Technical measures that provide as low a speed as*

possible at places and on along routes where car drivers have to interact with walcers seem to be the only reasonable solution of these problems: humps, elevated intersection areas (one could call them „interaction areas"), mini-round abouts, etc..

Another most important aspect that has been mentioned in WALCYNG is *good visibility* at interaction areas.

Both types of solutions provide better safety and, at the same time, they make walcyng more attractive:

- crossing roads becomes easier
- walcyng becomes more undisturbed
- waiting times for walcers become shorter
- communication between car drivers and walcers is fairer
- more equity between walcers and car drivers is provided.

5.3. Vehicle speeds

One main element of unsafety in the traffic process is vehicle speed (e.g., Varhelyi 1996). It especially affects the degree of severity of accidents (Pasanen 1992).

At the same time, vehicle speeds are mentioned by walcers as a very disturbing factor, and even as a barrier for walcyng (see table above; Risser & Ausserer 1997). Thus, a reduction of vehicle speeds in areas where walcers and other vehicles have to interact would improve both safety and the attractiveness of the traffic environment for walcers. It is not, therefore, a reduction of speed limits that is the main goal but "cutting off" speeds above the limit and, most of all, top speeds: speeding in inhabited areas should become impossible.

6. How to achieve better interaction and lower speeds

It has already been mentioned that in order to improve interaction between walcers and motor vehicles, the speed of cars has to be adapted better to walcers' speeds. Measures to achieve this are humps and/or elevated intersection levels. Mini round abouts also reduce speeds at such places where road users have to interact with each other (Hydèn et al. 1995). Flattened slopes at curbs combined with reduced road width at intersections make life easier for walcers at these points and have a speed reducing effect, thus improving safety. All this makes crossing the road for walcers easier, more comfortable and safer.

One measure for area-wide speed reduction, or better, speed control is movable speed-control equipment (where speeds are measured from a car; Pasanen 1996); another one is the speed limiter which is, as we speak, being evaluated (see Almquist & Nygaard 1997).

7. Travel times

Lower car speeds may lead to longer travel times. On the other hand, at cross roads the situation for one part of the car drivers will certainly improve, e.g., those who do not have the right of way: It will be easier for them to enter main roads and probably travelling times will be reduced as far as this type of interaction between car drivers is concerned. This has not been very well calculated, yet. Moreover, we do not know of any analyses of travel times of walcers under different car-speed conditions. It is

quite possible that there will be no time losses at all, if one takes the whole population viz. all the road users' travel times into consideration.

A perspective on safety work

From what has been said above, one can conclude that both walcers and potential walcers, precisely as people in general, behave in order to fulfill needs, or in order to avoid frustration. In this connection, safety does obviously not play a very important role: Walcers do not complain about any lack of safety, and potential walcers do not seem to be especially deterred by safety problems. However, safet, or the lack of it, is a societal problem. Thus, it seems that shaping conditions for walcyng with respect to other motives than safety is a the most promising way to influence users´ and potential users´ behaviour. Thereby, from a societal point of view, it has to be seen to it, that safety is improved. If walcyng is fun and, at the same time, safe, everybody will be happy in the long run.

One could dare to predict that traffic safety work will move in this direction, generally: Behaviour will be influenced by making road users both strive for reinforcement and avoid negative stimuli that are not directly related to safety aspects, but rather to other motives. Safety work will be done without referring to safety in one´s practical work and in one´s communication with the public, whereas evaluation work will, among others, of course be based on safety criteria. Safe behaviour will be sold as being fun, which will show in the accident statistics.

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