

Summary:

War and peace - a questionnaire survey about interplay and conflict among bicyclists and cars

TØI Report 1246/2012

Author(s): Aslak Fyhri, Torkel Bjørnskau, Michael W. J. Sørensen

Oslo 2012, 49 pages Norwegian language

In a nationwide survey 5222 bicyclists and car users in Norway were interviewed about interplay and conflicts in traffic. The survey shows that most of the interviewees were considerate towards other road users and had a good understanding of other road users' perspectives. Still, a number of the cyclists felt unsafe due to cars overtaking too closely, and a number of car drivers thought that bicyclists created problems by not using lights and by not signaling when turning. Among some bicyclists, in particular those who were out exercising, there were records of experiencing aggressive behaviour from cars, such as shouting, hooting and being splashed down by windscreen washers. Such behaviour was related to the experience from the car drivers of feeling the cyclists as an unnecessary hindrance. However, the most dangerous situations were related to lack of visibility from the bicyclists' part and lack of attention from the car drivers' part.

Background

Interaction between road users is a crucial element of any safe and efficient traffic system. Good interaction in traffic means that road users anticipate each other's actions and adapt to traffic flows well. This report gives the results of a comprehensive survey of a wide range of bicyclists and motorists about interaction and communication problems in traffic. The Norwegian public road authorities, who have commissioned this study, are interested in learning about interaction issues between these road user groups, in assessing the scale of such problems, and in investigating if information measures may be an appropriate tool for improving conditions.

Interaction problems can lead to both aggression and increased risk of collisions, but one can just as well imagine that those situations that create the most aggression are not particularly dangerous, and vice versa. Interaction problems can thus be said to take place along two partially independent dimensions: aggression and risk. In addition, particularly for bicyclists, it is important to take into account that some situations can be perceived as unsafe, although they do not lead to an increased objective accident risk. So also the experience of risk is important to take into account in an assessment of possible measures.

This report seeks to answer the following specific questions:

1. What are the major challenges related to lack of interaction?
2. Are there any particular groups that are more prone to poor interaction than others?
3. How big a problem is lack of interaction between motorists and bicyclists?

To investigate these three issues we have based our discussion on some typical themes and areas of conflict:

- Distance between passing motorists and cyclists
- Unpredictable behaviour, location in the roadway and the sidewalk
- Visibility (reflective materials, light signals)
- Problems associated with exercise bicycling on the road
- Being hindered and "the right of the roadway"

Method

A total of 14,594 people from the membership registers of the Cyclists Federation (SLF), Falck bicycle registry and the Norwegian Automobile Federation (NAF) were invited to participate. Of these, a total of 5222 persons (36 %) responded. Respondents consisted of 1196 motorists from NAF, 1725 cyclists from Falck and 2301 members from SLF. Invitations to participate were sent by e-mail, and respondents completed the form online. The samples are not fully representative of the population. In interpreting the answers we need to be aware that bicyclists in our sample are more educated and older than the average bicyclist, and that motorists in our sample are older than average.

Knowledge, attitudes and values

Respondents were asked who had the right-of-way in four specific yield situations. Compared with the situation in the 1990s, when this was last examined, we see that there is still a lot of uncertainty concerning right-of-way rules between cyclists and motorists. SLF members are best informed about the rules. However, there is little evidence that lack of knowledge about such rules leads to dangerous traffic situations, since many of these situations are resolved through active interaction between road users, as happens when cars stop for bicyclists at pedestrian crossings, even though the car has the right of way.

Both motorists and bicyclists expressed "right" attitudes and values towards the opposite party, and they also had very good knowledge of the particular circumstances that caused most trouble to others.

How do bicyclists and motorists behave in traffic?

Bicyclists are generally careful in situations where they have to interact with motorists. For example, as many as 61 percent said they always reach out their arm when they turn to the left and there are cars nearby. Quite a lot of cyclists choose to use the roadway even in situations where there are separate bicycle paths close by. This has to do with the often poor quality of such facilities, something even the

motorists acknowledged. Also the motorists seem to behave carefully and considerably in traffic. As many as 89 percent of motorists say that they always use turn signals at right turns.

Experience of problems among bicyclists and motorists

For bicyclists the biggest problem is that cars fail to give turn signals. Then follows that motorists do not yield at intersections and that they keep too little distance while overtaking. The biggest problem for motorists is that bicyclists fail to use lights. Secondly, they do not signalize at intersections, nor do they obey red lights. A fact analysis reveals that car drivers distinguish between two types of problems in the interaction with cyclists: a) behaviour that create dangerous situations and b) behaviour that is only annoying (being hindered). Bicyclists do not distinguish between car driver behaviour that is dangerous and behaviour that is annoying. Rather than becoming irritated, bicyclists tend to feel unsafe as a result of poor interaction. The situation that makes bicyclists most unsafe is when cars keep too little distance while overtaking.

Consequences of poor interaction – aggression

The participants were asked whether they had experienced or expressed aggressive behaviour. Generally, bicyclists had expressed more aggressive behaviour than motorists. In the SLF sample, about one third had been shouting at a motorist during the past year, and a quarter of the Falck sample had done the same. Among motorists this figure was 7 percent. This result must be interpreted in light of the difference in numbers of motorists and bicyclists on the roads. Each individual bicyclist will statistically have had many more meetings and potential conflicts with motorists than vice versa.

More bicyclists than motorists have experienced various forms of aggressive behaviour from others. As many as 70 percent of SLF members and 50 percent of Falck members have experienced that motorists have been driving in an aggressive and threatening manner. Men have experienced negative reactions more frequently than women, but the gender difference is not as large as one might expect. Furthermore, we see that those who use the bicycle for training or exercise, to a larger degree than others have experienced negative reactions. The most important variable for predicting being subject to aggression is one's own aggressive behaviour. This indicates that there are some motorists who show, and receive, more aggression than others. In addition there are some situational factors, particularly related to bicycle training, and to being hindered, that frequently trigger negative sanctions.

All in all, aggressive behaviour appears to be a greater problem for bicyclists than for car drivers. It seems that only a minority of motorists express aggression towards bicyclists. The typical car driver, at least those who are interviewed here, act with caution and consideration.

Consequences of poor interaction – accidents

It is important to identify the interaction problems that actually lead to increased accident risk, and not just to irritation and aggression. The questionnaire therefore contains a number of questions about accidents. We focus primarily on the bicyclists' answers, since motorists had hardly been involved in accidents with bicyclists.

Most self-reported bicycle accidents are single accidents. This was also the situation in 2004, when this was examined last.

To the extent that bicyclists report that they have had an accident where the other party is a motorist, these tend to happen at intersections. No collisions between bicyclists and motorists had occurred when the bicyclist were running against a red light. There are also very few collisions at intersections with bicycle paths. Rear-end collisions are a fairly common type of accident, but according to our data these will typically be between two bicyclists.

What are the major interaction problems?

In order to examine this question, we have set up a conceptual model where we distinguish between actions that lead to aggression and actions that lead to increased risk of actual accidents. The analysis shows that both types of failures occur and are perceived as problems, but that quite often there is little correlation between the two dimensions. Bicyclists make the distinction between situations that are perceived as unsafe and those that cause irritation. To summarize bicyclists' experience, we have ranked the various situations scores on the dimension "Dangerous", in the sense of actually increasing the risk of an accident, and on the dimension "Annoying / unsafe".

Bicyclists find that being overlooked and motorists keeping too little distance while overtaking are the biggest problems. However, few accidents occur due to the latter. Car drivers not yielding and/or being inattentive is on the other hand a significant safety problem.

For motorists bicyclist behaviour can be rated along two dimensions: whether it leads to an increased accident risk, or if it causes irritation. The bicycling behaviour that appears to cause the most accidents is the non-use of lights. Also failing to use signals when turning can create dangerous situations. Irritation and aggression stems to a great extent from perceiving cyclists as unnecessary obstacles. Bicyclists who alternate between carriageway and pavement will sometimes create irritation, because motorists see it as "unfair" that the bicyclist would be going faster, but it is only when such behaviour hinders the car driver that it also causes irritation and aggression. Exercise cycling is not something motorists are exposed to often, but once cars are hindered by such bicyclists, it can be the source of much annoyance.