

Public information about road safety

Summary

In the Netherlands, public information has already been used as an instrument to improve road safety since the 1930s. The final aim of each information campaign is a voluntary and durable change in traffic behaviour. This requires road users to have sufficient knowledge about a problem and to adapt their behaviour. Here public information also plays an important role. The more road users relate to a problem, the more effective an information campaign will be, especially if it involves behaviour that is easily adapted. In actual practice this usually is not the case, as a result of which public information on its own has hardly any or no effect at all on road user behaviour. Public information can be effective if it is part of a large behaviour campaign and is combined with police enforcement, rewards, or other methods. Research has an important role in the preparation of an information campaign.

Background

Public information is often used as an instrument to improve road safety. Beside traffic lessons and driver training, it is part of the larger field of traffic education. Information about risk communication is defined as a methodical communication activity that aims at motivating people or helping them to use healthy or safe behaviour (Brug et al., 2007). Brug et al. distinguish five steps to achieve durable behaviour change:

- problem awareness: attention for a problem;
- better knowledge of a problem: knowledge of its magnitude and causes;
- attitude change: awareness of pros and cons of specific behaviour and the accompanying feelings;
- behaviour change: stopping unwanted behaviour and learning new standards and behaviour;
- desired behaviour should be maintained; the new behaviour should become a routine.

Generally, three main types of (governmental) public information are distinguished, namely *informative*, *educational* and *persuasive* information (see Van Woerkum & Kuiper, 1995). The government uses informative information to give information to the public that they can use to rapidly find useful answers to frequent questions. Educational information is used to help the public to reach a well-founded sensible decision. Persuasive information, finally, is used by the government to convince the public of the preference of certain behaviour, so that they will also adopt it.

In addition to this distinction, a difference is often made between *mass media* and *interpersonal* information. Interpersonal information involves two-way communication between information official and client in which the information official receives immediate feedback. Mass media information is characterized by one-way communication using mass media like television, internet, radio, newspapers and free local papers.

This fact sheet will discuss the history and set-up of information campaigns, the principles of behavioural psychology that need to be taken into account, and other factors that determine the effectiveness of public information. We will mainly restrict ourselves to public information using the mass media that is aimed at convincing the public: *mass media persuasive* information. A specific form of this type of public information, [Fear-based information campaigns](#), is discussed in a different SWOV fact sheet.

How did public information about road safety develop in the Netherlands?

In the Netherlands, information campaigns in the field of road safety date back to the 1930s. Leerink (1938) paints a picture of intensive information efforts in those days. The Association for Safe Traffic Amsterdam which was founded in 1931 organized 'propaganda weeks' directed at specific groups of road users. The organization which was then called KNAC (Royal Dutch Automobile Association) and the Royal Dutch Tourist Club ANWB published road safety brochures and put special safety - advertisements in the papers. KNAC also invented a kind of mobile information: a car driving around the country ('the mobile traffic educator') that used exchangeable signs to give 'traffic hints' to road users committing errors.

In the period 1970-2000, information campaigns about traffic were often carried out on an ad hoc basis at the initiative of different organizations (Dutch Traffic Safety Association, Ministry of Transport, Dutch Association of Insurers), and not always with a clear connection between national and regional activities. In recent years, the government's public information policy with relation to road safety has been more coherent and facilitating. The greater coherence gained ground because mass media information was joined with enforcement and regional activities in specially planned campaign periods. Greater coherence was also achieved by bringing separate campaign themes like seatbelts, alcohol, aggressive behaviour, or bicycle lighting under the common denominator 'Arriving home safely'. Campaigns at the regional level are facilitated by making available a toolkit consisting of information material that has been developed at the national level (Tamis, 2004).

How does persuasive information work?

A model that is often used to understand and analyse how persuasive information works is McGuire's 12-step model (McGuire, 1986). It is somewhat more detailed than the five steps described by Brug et al. (2007). If information is to result in behaviour change, McGuire says that people must be (1) subjected to the message and (2) pay attention and (3) be interested. Next people have to (4) understand the content of the message, (5) possess or acquire the skills to perform the desired behaviour, and (6) bring their attitude in conformity with the message. Then people have to (7) commit the new information, knowledge, and attitude to memory and (8) be able to retrieve it from memory at the right time and in the right situation. Next, people must (9) decide to adapt their behaviour to the recollected information, and (10) act on the decision. Finally the actual behaviour must (11) immediately be confirmed/rewarded, and (12) be maintained.

Not until all twelve steps have been taken, a durable behaviour change will be achieved. Because each step is preconditional to the next step, and because there can be a hitch at any step, this theory makes it understandable that it is often difficult to achieve behaviour change by using public information.

Which principles from behavioural psychology are important for information?

Several principles from behavioural psychology are important for the set-up and content of information campaigns. Examples are the differences between *central en peripheral* processing of information (Petty & Cacioppo, 1986) and between *planned behaviour* and *habitual behaviour*.

Central versus peripheral processing of information

When people are deeply involved in a subject, for example because it touches them personally, they are motivated to search for information about that subject and to process it thoroughly. This so-called central processing enables an enduring change of attitude and behaviour. When there is only limited involvement with a subject, there is superficial, so-called peripheral processing of information. Changes of attitude and behaviour are still possible, but these are unlikely to be durable.

Planned behaviour versus habitual behaviour

There also is a fundamental difference in information processing between planned behaviour and habitual behaviour. When behaviour is planned, this is based on deliberate choices. Habitual behaviour is not preceded by deliberate choices. The deliberate choice was made in the past, but due to frequent repetition the behaviour has become (partly) automated; this saves time and energy. In its most extreme form habitual behaviour has become an automatism of which one is totally unaware. In less extreme cases a 'deliberate choice' is made for what one is accustomed to because this feels safe and comfortable. It is more difficult to affect habitual behaviour with information than planned behaviour.

Do information campaigns have the desired effect?

Information campaigns often succeed in getting attention for a problem and increasing knowledge about a subject. In addition, information campaigns addressing a specific group can often achieve an attitude change. To achieve the most ambitious goal, actual behaviour change, information only without additional measures is insufficient or not adequate at all. In 1991, the Netherlands Court of Audit concluded in a critical evaluation that the effects of governmental information campaigns are often limited to a certain 'range', 'attention', 'knowledge' and 'understanding'. The Court of Audit rarely found a contribution to wider acceptance of the message, not to mention to behaviour change. More recently, experts once more concluded that just providing information usually is insufficient to change behaviour (Pol et al., 2007; Veenman & Volmer, 2002). European road safety experts agree with this conclusion by stating that road safety campaigns should as much as possible be accompanied by

police enforcement or other additional measures (Silverans & Neve, 2007). This increases the chance an information campaign will affect behaviour.

In the Netherlands, information in combination with police enforcement or rewarding has resulted in an increased use of seatbelts and child protection devices, and an increased use of bicycle lights. (Goldenbeld & Schaap, 1999; Hagenzieker, 1999; AVV, 2007). Other countries (e.g. Australia, New Zealand, United States) also found that a combination of police enforcement and information results in improved road safety (see Delaney et al., 2004).

If effects are measured at all, this is only done during or just after a campaign. This shows the short term effects. It is likely that – if no new campaign is carried out – part of the possible effects that are found disappear with the passing of time because the behaviour is insufficiently rewarded or stimulated and has not become habitual.

When information and enforcement are combined it is difficult to measure the effects of information as an independent measure. Examples are the annual mass media information campaigns against alcohol in traffic that have been carried out since the introduction of the Dutch law on alcohol use in 1974. In periods of unchanging police enforcement (in the 1980s) the influence of information did not result in any measurable changes in driving and drinking behaviour of Dutch drivers (Mathijssen, 2006). But this does not mean that public information should be left undone; information makes a demonstrable contribution to knowledge increase and attitude change. This, in turn, contributes to the acceptance of unpopular but effective measures like stricter enforcement. Especially the Bob campaign (since 2001) does very well in terms of reach, acceptance, knowledge increase, and (self-reported) attitude change (AVV, 2007; Pol et al., 2007). This campaign not only addresses visitors of bars, restaurants or hotels, but also addresses people who visit friends or go to a party. This campaign does not discourage drinking, but pleads for safe transport afterwards: the designated driver.

Why do information campaigns not always have the desired effect?

Public information in relation with road safety makes people aware of risks that go together with behaviour and presents a solution or alternative behaviour. Certain psychological mechanisms can undermine the effect of this type of information:

- People are inclined to be unrealistically optimistic about their skills to avoid danger and risks. Information that threatens the feeling of personal invulnerability will be ignored, labelled unreliable or unimportant information, or be 'explained away' (Velthuisen, 1996).
- One's own experiences are included in personal risk estimation, for example that one is a very good driver, has never been involved in a crash, and always wears a seatbelt. The result is that general risk information as is given in the media is considered to be relevant for others, but not for oneself. (Velthuisen, 1996).
- If the information message unintendedly conveys the feeling of being patronized or the freedom of choice being limited, this can lead to psychological resistance (reactance) against the content of the message (Tertoolen, 1994).
- People consciously accept certain risks that are pointed out by information (Wildervanck, 1988).
- Habitual behaviour is very difficult to change without help from special devices or external pressure, even if one should wish to do so (AVV, 1995).
- If one is insufficiently concerned with the road safety problem, the information processing is not sufficiently 'central' but more 'peripheral' instead; this decreases the chance of durable behaviour change.
- If the information message is not consistent with the values and norms that are important to the road user, this can result in so-called cognitive dissonance. In that case the road user feels an unpleasant inner tension because his own preference or behaviour is in conflict with the information message. A psychological mechanism to eliminate this unpleasant feeling is to find extra arguments to negate the message. This can result in behaviour that is the opposite of what the information wishes to promote.

What can be done to ensure an information campaign having the desired effect?

As was mentioned earlier, an information campaign has a better chance of success if the target group is concerned with the problem (central information processing) and if the campaign takes possible habitual behaviour into account.

If the information is aimed at a problem in which people are very interested anyway, the conditions for the campaign are already favourable from the start. There will in any case be much attention for the content of the message (Rooijers & De Bruin, 1988). In 1995-1996, for example, the campaign about

the right adjustment of head rests coincided with great media interest for whiplash, a new phenomenon at the time. With this support the campaign resulted in a considerable increase from 40% to 60% of correctly adjusted head rests (see also the SWOV fact sheet [Whiplash and prevention](#)).

The commitment is also strong, and therefore there is a positive basis, if the information is in line with social trends, behaviour patterns, or 'life styles' (Wittink & Goldenbeld, 1996). The main reason that the Bob campaign is successful is that it doesn't exclude people with a lifestyle (or circle of friends) which involves going out and drinking (Pol et al., 2007).

Information can also be successful when it involves behaviour that can be changed fairly easily (e.g. adjusting a head support) and no strongly set behavioural patterns need to be broken.

When habitual behaviour does need to be broken or when the target group is not yet sufficiently interested in the issue, there are several ways this can be dealt with and thereby increase the information effect. This is discussed below.

Stimulate involvement

Involvement, and hence the central information processing, can be stimulated in different ways (Schaalma et al. 2007), for example by:

- presenting the message in an unusual, new manner; a Dutch example is 'Goochem the armadillo' who stimulated attention for child safety in connection with seatbelts;
- presenting a new or unexpected message; an example is the Bob campaign in 2001 that conveyed a new message which did not discourage drinking as is customary, but supplied information about a concrete and feasible solution for transport afterwards;
- making an explicitly personal demand for attention for the message (for example 'Who is the Bob, you or me?').

Breaking habitual behaviour

An information campaign can attempt to break habitual behaviour in different ways. Schaalma et al. (2007) mention these five manners:

1. give information at those moments that people go through an important change (e.g. moving house, marriage, child birth) when the old behaviour is evaluated once again;
2. give 'reminders' at crucial locations (for example, the presence of Goochem the armadillo in the car to remind the child (and its parents) to use the seatbelt);
3. give feedback about habitual behaviour at regular intervals (for example with a speed feedback sign alongside the road);
4. draw attention to alternative behaviour and reward this behaviour;
5. give people tips about what exactly they should do to replace old habits with new ones

Especially manners 3 and 4 involve more than just information, there a combination with other intervention methods, like feedback or rewarding, is required. When information is part of an integrated campaign, including for instance police enforcement and supplementary information or rewarding activities at a regional level, success is more likely than when the information is an individual measure (Tamis, 2004).

Rules for a 'good' information campaign

Some rules for a good information campaign are (AVV, 1995; Damoiseaux, 1998; Pol et al. 2007):

- In advance, test the message on the target group for opinions, questions, and feelings it evokes.
- Draw attention (by pointing out a wrong or by responding to an emotion).
- Be consistent in the argumentation and unambiguous in the message.
- Give information that is truly useful.
- Ensure that people remember the message at the appropriate moment (reminders).
- Enable people to make their own decision: the information needs to increase their feeling of freedom rather than limit it.
- Make sure the information message allows for identification.
- Appeal to the receiver's sense of responsibility.
- Do not communicate the unwanted behaviour, but, on the contrary, the desired behaviour; teach the new behaviour instead of discouraging the old behaviour.
- Stimulate the desired behaviour with the prospect of a (concrete) reward.

- Show exemplary behaviour from the target group's immediate surroundings and behaviour that fits their perception of the environment.
- As a messenger, set the right example; be reliable.

How is a good information campaign set up?

According to Damoiseaux & Kok (1998) the preparation of an information campaign roughly consists of two phases: 1) a phase concerning content, and 2) a development phase. The first phase is used for an exploration of the problem which makes clear how problem and behaviour are related, and which possibilities there are to influence this behaviour. The second phase is used to determine the content and the design of the campaign. *Table 1* shows the questions that need to be answered in each phase, both by consulting experts and literature, and by interviewing subjects.

Campaign phase	Main question
1. Preparation of content	
a. Problem analysis	What is the relation between problem and behaviour?
b. Behaviour determinants	Which personal, social, or environmental factors determine behaviour?
c. Feasibility of influencing	To what extent can the behaviour determinants be influenced?
2. Development of the campaign	
a. Policy analysis	To what extent does the information purpose connect to policy?
b. Target group analysis	How can the information meet the expectations, experiences, wishes, and possibilities of the target group?
c. Message analysis	Is the structure of the message sound and clear, and does the message offer an effective solution?
d. Medium analysis	Which medium or media are best suited for conveying the message?
e. Monitoring	Which possible developments can partly affect the outcome of the campaign and therefore need to be monitored?
f. Pre-test	Is the message understood? Do the form and the content of the message meet the expectations and capabilities of the target group?

Table 1. Questions that need to be answered in the preparation of an information campaign according to Damoiseaux & Kok (1998).

A good preparation also involves designing the assessment of the behaviour effects and, if possible, the campaign's effect on crashes (Delhomme et al., 2009). Such an assessment also makes it possible to carry out an economic assessment of the campaign in terms of a cost-effectiveness or a cost-benefit analysis (see the SWOV Fact sheet [Cost-benefit analysis of road safety measures](#)). Although economic assessments of information campaigns are strongly recommended (Delhomme et al., 2009) they are generally missing. Especially for national campaigns it is very difficult to find a good reference group, which makes a good research design almost impossible.

Conclusions

The purpose of mass media information is to provide knowledge, change attitude and to change behaviour. Only under very favourable conditions, e.g. a target group that from the start is very committed to the subject and the focus of the campaign on new, relatively easy behaviour, can persuasive information result in changed attitude and behaviour. In complicated everyday practice the conditions generally are less favourable (automatic or complex behaviour, or behaviour that is difficult to change; a target group showing little involvement). Public information as a stand alone measure can therefore not be expected to have much behavioural effect or to have any at all. However, some behavioural effect can be expected if the information is part of a larger behaviour campaign containing elements of police enforcement, rewarding, or other methods of change.

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