

Summary:

Psychological Factors Influencing Transport Mode Choice

A literature study

The Norwegian Public Roads Administration has commissioned the Institute of Transport Economics to conduct a literature study with the objective of providing an overview of psychological theories relevant for understanding use of public transportation and a description of studies of psychological factors influencing transport mode choice.

Search for relevant studies was conducted in the databases Transport and PsycINFO, on the homepages of Scandinavian transport research institutions, and in the library database of TØI. The search resulted in 85 articles in international scientific journals and 34 research reports. Due to the project's financial constraints this report had to be limited to empirical studies with a strong theoretical foundation. After reading all the literature obtained through the search empirical studies from 21 scientific articles were chosen to be included in the report. The report also covers two studies presented at scientific conferences, which were included because they support the findings from two of the chosen articles.

Eight studies are based on the Theory of Planned Behavior, proposing behaviour to be explained by behavioural intention, which in turn is influenced by attitude towards the behaviour, subjective norm (beliefs about other people's expectations) and perceived behavioural control (freedom of choice and to what extent the behaviour will be difficult to perform). The results of the studies show that this theory explains transport mode choice very well. Behavioural intention explains between 69 and 82 % of the variation in transport mode choice. Together, attitude, subjective norm, and perceived behavioural control explain between 49 and 72 % of the variation in behavioural intention.

According to the Theory of Goal Directed Behavior focusing on the behaviour rather than on the goal of the behaviour increases the likelihood of actually performing the behaviour. Holding an implementation intention (a concrete plan for performing the

behaviour) makes it more likely that the behaviour will take place, compared to holding a behavioural intention without a concrete plan for performing the behaviour. One study showed that an implementation intention contributed to explaining transport mode choice in addition to what could already be explained by behavioural intention. Another study showed that the effect of behavioural intention on use of different means of transport was stronger for persons holding an implementation intention compared to persons not holding an implementation intention. These results indicate that persons with a concrete plan for how to conduct their journey are more likely to conduct their journey as intended, compared to persons who merely hold an idea about how to travel, but no concrete plan.

Theory about habits proposes that repetition of behaviour may lead to behaviour becoming automatised, performed without noticeable effort and attention. Frequent use of a specific mode of transport on a repeated journey may cause the same mode of transport to be chosen on future repetitions of the journey without the traveller going through a thorough decision process or even being conscious about his/her choice. Five studies investigated the impact of habits on use of information and transport mode choice. The results showed that a general habit for using the same mode of transport for several different journeys reduced the amount of information being used in the decision process. General habit also had a direct effect on transport mode choice.

A broad theoretical basis gives reason to expect behaviour to be caused by attitudes, but also that behaviour influences attitudes. According to theory about cause and effect, the cause must precede the effect. With the exception of experiments, one will seldom be able to measure attitude and behaviour at the specific time of the causation. In the context of transport mode choice, one will seldom be able to measure attitude towards transport mode at the specific moment the choice of transport mode is made. Two

studies show that a reciprocal model, applied to attitude and behaviour measured after the choice of transport has been made, gives a good representation (goodness of fit) of the data, indicating a reciprocal relationship between attitude towards and use of a specific mode of transport.

Theories of personal values suggest that several values may influence transport mode choice. The literature collected included two studies concerning ecological norm (felt obligation to preserve the environment) and three studies concerning social orientation (caring for the well-being of others rather than serving one's own best interest). The results show that persons with a strong ecological norm and persons that are socially oriented prefer public transport to a larger extent than persons with a weak ecological norm and persons who are self-serving.

Theories of emotions suggest that many different emotions, such as feeling safe, may influence transport mode choice. However, among the literature investigated there was only one study concerning emotions. The study showed that car users perceive the risk of being involved in a car accident to be lower, compared to users of public transport. Furthermore, the study showed that users of public transport perceive the risk of being involved in an accident with public transport to be lower, compared to car users.

In the obtained literature, primarily in the research reports, there are many studies not included in this report. The omitted studies concern mainly people's perception of risk associated with traffic accidents and antisocial behaviour (e.g., assault), psychosocial benefits (e.g., self-esteem and autonomy), and specific characteristics of journeys and transport modes that attitudes may be built upon (e.g., travel time and comfort).

The theoretical review suggests that there are several psychological factors that may influence transport mode choice, but that have not been investigated in empirical studies concerning transport mode choice. There are more personal values than ecological norm and social orientation. Self-efficacy (capability) and achievement are some personal values that may be relevant to transport mode choice. There are other types of emotions than feeling safe. Restlessness and feeling irritated may also be relevant emotions. In extreme cases fear may be a symptom of a phobia. Avoidance of certain transport modes may be a result of agoraphobia, social phobia, or a specific phobia (e.g., aerophobia and fear of tunnels). Finally, literature on self-presentation shows that people consume products and services to confirm their identity to themselves and to communicate their identity to other people. Use of certain modes of transport may also be a tool for self-presentation.