

PROMOTING RIDE SHARING: THE EFFECT OF INFORMATION ON KNOWLEDGE STRUCTURE AND BEHAVIOR

EXECUTIVE SUMMARY

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BACKGROUND

Despite continuing technological improvements in vehicle emission control systems, vehicles still are the single largest source of air pollution in U. S. cities. With vehicle use continuing to increase, it is clear that technological advances alone will not solve our air pollution problems in the foreseeable future. The 1990 Clean Air Act explicitly recognizes the integral role that travel management plays in comprehensive air pollution control strategies.

Travel-related provisions of the Act include an Employee Commute Options (ECO) program which focuses on work-related commuting. The program requires large employers in the most polluted cities to encourage the use of alternatives to solo commuting among their employees. Employers have considerable flexibility to provide incentives and/or disincentives to switch from single occupancy vehicles to alternative modes of transportation that include transit, carpools, vanpools, telecommuting, walking, and bicycling.

The success of ECO programs will revolve around employee willingness to change travel behavior. While extensive research has been done on specific transportation control measures to

trip reduction campaigns have been undertaken, the transportation community has been frustrated by consistently disappointing results. Few of these programs, however, have been analyzed to examine what factors are most important in contributing to a change in employee behavior. The identification of behavior change techniques that promote durable change in travel behavior may increase the likelihood of ECO program success.

A source of new ideas can be found in the emerging field of Conservation Behavior. There is a growing body of literature that explores how and why people change their behavior to protect the environment. Studies of behaviors such as recycling, energy use, and water conservation have shown that certain types of messages work better than others to stimulate lasting changes.

Contrary to popular belief, it appears that strong incentives and disincentives may be less motivating over time than might be expected. These techniques require constant monitoring and steadily stronger “rewards” or “punishments” to maintain initial levels of compliance. They also can result in undesirable negative reactions in individuals, causing them, for example, to increase their non-work automobile usage or to creatively circumvent the intent of an ECO program. On the other hand, messages that engage interest on the intellectual level may hold surprising power to bring about change. This study is one of the first to explore whether findings from previous work also apply to transportation behavior.

Regardless of which package of incentives, disincentives, or other motivational techniques employers choose in structuring their ECO programs, a key common element will involve providing information to employees.

Psychological studies reported in the literature on the differences between commuters who drive alone and those who use an alternative mode of transportation suggest two major reasons why employees may not switch to alternative modes: (1) lack of information on how to switch and how to deal with issues which may be encountered while using an alternative mode; and, (2) differences in perceptions about the alternative mode (e.g., they are seen as less reliable or more inconvenient by those who do not participate than by those who do). These findings suggest that information may indeed provide a powerful tool in campaigns to encourage solo

drivers to switch to alternative transportation modes. The effectiveness of the campaign, however, is likely to depend on how the information is delivered.

Because the presence or absence of information is closely linked to individual decision making, it may seem that affecting decisions, and, therefore, behavior, is a simple matter of transferring information. The acquisition of information - learning - is, however, very selective. Not all styles of presentation are equally effective at transferring information. In general, pallid, relatively abstract, factual information is ineffective at affecting decision making. In contrast, information which is interesting, vivid, concrete, and personalized (e.g., case studies, stories) encourages learning and the integration of the new information with existing knowledge, making it much more likely that the new information will be used when making behavior decisions.

FOCUS OF STUDY

This study, a collaborative research effort between the EPA and the University of Michigan's School of Natural Resources and Environment, explored methods States and employers might use in implementing ECO requirements based on evidence of human behavior and decision making strategies. The study was carried out at four EPA facilities and at one private sector site. The specific method tested was a narrative or story-based information campaign. This method is appealing because it takes advantage of human decision making processes and has the potential to circumvent some of the problems associated with traditional economic incentives and disincentives (e.g., poor durability). It is also appealing because it is low in cost and easy to implement.

The study was designed to test the hypothesis that a story-based information campaign is an effective technique for changing employee knowledge about carpooling. It also tested the hypothesis that changes in employee knowledge should result in increased willingness to try carpooling. This pilot study did not attempt to measure actual behavior change. Such a task would require long-term follow-up beyond the scope of this study.

The story-based information campaign was compared to a factual information campaign (a more traditional approach) and to a control to determine: (1) if information campaigns, in general, affect how people structure their knowledge about ride reduction and vehicle related environmental issues; and, (2) if the way in which information is presented (e.g., story, factual)

affects this structuring. The target behavior was carpooling. Carpooling was chosen because it can be adopted inexpensively almost anywhere and because it has not been studied as extensively as less available transportation options, such as transit.

FINDINGS

This study provides initial data about the effectiveness of story-based information campaigns at changing employee knowledge about carpooling, and about how people structure their knowledge about carpooling. The findings are as follows:

- Individuals who received information, whether in story or factual format, felt more comfortable with their carpool knowledge; they felt that they had adequate knowledge to guide them in discussion and problem solving regarding carpooling.
- Participants who received information, in either story or factual format, organized their knowledge differently than participants who received no information; their knowledge structure was more complex.
- Text perceived as interesting by the reader, whether the text was provided in story or factual format, had a greater impact on perceived knowledge, confidence and comfort with knowledge than text perceived as uninteresting. Interesting text also increased reported willingness to try carpooling.
- Stories were more effective at conveying abstract information, such as the personal or social aspects of carpooling (i.e., conversation, company of others, relaxation).
- Factual text was more effective at strengthening existing concepts, (e.g., saving money on gas or parking, reducing air pollution).

- The information campaign did not minimize concerns about perceived negative aspects of carpooling, even though both the story and factual text provided information about how to deal with these perceived problems (e.g., flexibility, errands).
- The change in knowledge structure did not result in a willingness to change commuting behavior. Participants reported that barriers such as scheduling problems would prevent such change.
- Provision of information did not significantly affect participants' attitudes about the impact of automobiles on the environment.

IMPLICATIONS

The findings indicate that story-based information is more effective than factual text at conveying intangible aspects of carpooling and at creating a deeper understanding of issues related to carpooling. However, the study also suggests that increased knowledge and changed perceptions of carpooling are not enough to change behavior; any information campaign must be preceded or accompanied by a concerted effort to remove other significant barriers (e.g., scheduling problems, emergencies, not knowing people with whom to carpool). Lastly, it suggests that a combination of factual and story-based information may be the most effective way to change the way people think about carpooling and, ultimately, to encourage people to carpool, particularly in a work setting.

This study was an initial exploration of change in attitudes about and understanding of carpooling based on type of information received. Future studies may look at the effect of information on changing actual carpooling behavior, explore transportation alternatives other than carpooling, and examine the effectiveness of combinations of various strategies.

