Knowledge of the Concept Light Rail Transit: Determinants of the Cognitive Mismatch between Actual and Perceived Knowledge

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Abstract

Increasing the modal share of public transit is often regarded as a condition sine qua non for achieving a more environmentally friendly and sustainable travel behavior. In this context, the Flemish public transport company "De Lijn" is planning an investment program to develop a Light Rail network tailored at medium range distance (10-40km) trips (De Lijn, 2002; Varinia, 2008). At this moment, the concept of Light Rail is still (relatively) unknown in Flanders (the Dutch speaking, northern part of Belgium), as nowhere in the region, Light Rail was implemented as to date. Notwithstanding, the level of success of the new Light Rail system depends on people's knowledge of the system. This is confirmed by Dziekan et al (2004) who indicated that a lack of knowledge can be considered as an important barrier of public transport use. Moreover, Dziekan (2008) stated that travelers can only choose from travel options of which they are sufficiently aware. Bonsall et al (2004) discussed that sub-optimal decisions might arise when travel decisions are founded on a distorted view. Therefore, it is important to explore the level of knowledge of the concept Light Rail Transit (LRT) in the Flemish context and to identify potential misperceptions.

To explore the knowledge of the concept 'Light Rail Transit', data were collected by means of a survey, which was completed by 492 respondents. To obtain an optimal correspondence between the survey sample composition and the Flemish population, the observations in the sample were weighted based on age and gender. The survey queried various socio-economic variables of the respondents (e.g. age, gender, income, household size, number of children, owned vehicles…). Next to this personal questionnaire, the survey queried both stated and revealed knowledge of LRT. Stated knowledge was queried by the question "Do you exactly know what Light Rail is? (Yes/No)". Revealed knowledge was tested in two ways. First, respondents were confronted with a list of public transit pictures (LRT, subway, tram, train, trolley-bus) from which they had to indicate the correct Light Rail system. Secondly, the respondents were asked to give their own worded definition of LRT.

The results indicated that 34% of the respondents stated they had knowledge of Light Rail. However, only 70% (photo) and 57% (definition) of these respondents also had revealed knowledge of LRT (respectively 24% and 19% of total). Next, the actual knowledge of Light Rail Transit was calculated, which is defined as respondents having both stated and completely revealed knowledge (indicated both photo and definition correct). The results showed that only 15% of the respondents had actual knowledge of Light Rail Transit. At last, the cognitive mismatch was determined, delineated as no stated knowledge or stated knowledge but no completely revealed knowledge. These results indicated that no more than 81% of the respondents were subject to a cognitive mismatch. Therefore, it can be concluded that there is a lack of knowledge of the concept Light Rail Transit, which can lead to above mentioned sub-optimal travel decisions.

Dziekan (2008) stated that knowledge of the system will increase through professional marketing and information campaigns. It is the responsibility of the government and the public transport company "De Lijn" to provide information about the Light Rail system. However, the actual knowledge of Light Rail Transit and the cognitive mismatch may vary from person to person. To be most efficient, campaigns should take into account these differences and should focus on particular target groups. For this purpose, actual knowledge and the cognitive mismatch were separately modeled as binary logit models. The results for the actual knowledge model indicates that age, sex, frequency of public

transport use, household size, number of bicycles and number of shopping activities contributes significantly to the actual knowledge of light rail system. In particular, young persons (18-34 years) are more likely to have actual knowledge than older persons (+65 years), while males have higher probability of actual knowledge than females. Moreover, daily public transport users have higher probability of actual knowledge than persons who never use public transport. Next, larger household sizes and higher numbers of shopping activities decrease the likelihood to have actual knowledge. At last, the higher the number of bicycles, the higher the probability to have actual knowledge. The results for the cognitive mismatch model show only a significant effect for age and sex. Older persons and males have a higher probability for a cognitive mismatch than younger persons and females.

It can be concluded from above models that campaigns should focus on older people and on large households. Moreover, campaigns can be performed in shops to reach the persons who are making many shopping trips. To reach the car (non-public transport) users, information campaigns can be performed along the road. At last, campaigns should focus both on males and females, since it was shown that both sexes have problems with understanding the concept LRT.

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