

Skill-development when interacting with in-vehicle information systems: a training study on the learnability of different MMI concepts

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Abstract

Elements of skill-development in using in-vehicle-information-systems are discussed, followed by results of an on-the-road study. Entering of a destination into a route guidance systems was practised by 12 drivers while driving on routes with reduced traffic. Each driver performed 68 to 100 training trials. Two route guidance systems were used which differed in user interface. Mean duration of destination entry and mean frequency of glances to the in-car task diminished with practice and varied with difficulty of route. Individual differences in performance and skill acquisition were also found, while task demands remain high after practice. Differences between user interfaces are apparent in performance.

Introduction

During the summer of 2001, automobile manufacturers in Germany competed for the privilege of calling themselves “the first to have brought the internet into the car”. This is just one very clear sign that the possibility to use information technology in the vehicle has increased in recent years. Driver assistance and driver information systems are becoming standard in commercial and private vehicles and affect the way people drive nowadays. The different systems are not equally demanding. In the present study the focus is on the effects of information systems that require driver input and that can be operated while driving. Such systems pose a special challenge to human factors engineering as the interface design is crucial for safe operation and effective time-sharing between operation and the driving task. Interface design is also important as most users will receive no special training. Driver distraction caused by communication and information technology in the vehicle is a serious safety problem and leads to an increase in traffic accidents (e.g., Green, 2000). To deal with safety problems, design guidelines (e.g.,

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