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The optimised driver training in Germany – combining theory, practise, blended learning and learning progress assessment

For about ten years, measures to improve the safety of novice drivers in Germany have increasingly been considered in their systemic context (BASt, 2012). This is intended to utilise new potentials arising from an interaction and mutual supplementation of measures. As the “system of measures for novice driver preparation” holds several properties, which are typical for an educational system, findings from educational science and educational policy control measures can be utilised to develop educational measures for novice driver preparation. The obligation of both, driver training and driver testing, is a core element of this system which also encompasses other elements, such as accompanied driving, driving instructor training and quality assurance in driving schools.

The driving test has been subject of intensive research and development since 2005 within the system of novice driver preparation in Germany. After the introduction of a computer-based theoretical driving test in 2010, the benefits of the computer as a test medium were increasingly utilised (e.g. through innovative task formats, scientific evaluation methods). In order to systematically assess driving behaviour in real traffic, a catalogue of practical driving tasks was developed which serves as the basis for the education of driving teachers since 2018 and which serves as the basis for the optimised driving test since 2021. This catalogue was developed on the basis of a psychological demand analysis of traffic tasks and encompasses a detailed description of situational driving tasks (e.g. driving at intersections), a set of related driving competence classes (e.g. speed adaption) and evaluation criteria (e.g. minor or major driving errors). The development of driver education was not subject of scientific research for decades. In line with this, the legal framework of the driver education system still dates back to concepts of educational science which were developed in the 1970s and 1980s. With respect to the objectives, the content and the didactic design of driver education, the last comprehensive amendment took place in 1998. Since then, only minor revisions were made.

To overcome this reform backlog, two successive research projects of the Federal Highway Research Institute were completed. They encompassed (a) a specification of the general technical and subject-specific requirements for elaborated curricula, (b) an analysis of demanding driver training curricula from an international perspective and (c) design recommendations which utilises both, traditional and computerised teaching and learning materials (Bredow & Sturzbecher, 2016). Furthermore, the current state of the driver education system was empirically assessed using data from learning management systems of publishers, which provide teaching and learning materials (e.g. description of learning progressions, identification of predictors for exam success). Based on these results, a concept for future driver training was proposed (Sturzbecher & Brünken, 2021) which consists of three major components: (1) a

competence framework, (2) a training plan and (3) design recommendations for driving instructors and publishers of teaching and learning materials:

- (1) The competence framework poses 24 single competence classes for the car driving license (category B). Furthermore, it postulates the related competence standards and describes the minimum content of the driver education. In addition, teaching and learning is more strongly connected towards the demands of practical driving scenarios as described in the driving task catalogue. At last, the framework poses a special emphasis on traffic perception and hazard avoidance as well as on advanced driver-assistance systems (ADAS).
- (2) In the training plan, the minimum training contents are arranged and assigned to different teaching/learning forms (independent theory learning, theory classes, practical driving instruction) from a content-related, educational and psychological as well as subject-didactical point of view. Furthermore, the use of blended learning is recommended as it combines the advantages of both, asynchronous e-learning modules for independent theory learning and classroom theory instruction. This recommendation is based on findings from empirical studies and meta-analyses which demonstrated superior learning effects of blended learning – especially with heterogeneous learning groups – in comparison to classical classroom lessons or e-learning alone.
- (3) At last, design recommendations on content, methods and media for independent theory learning and theory lessons were developed. These recommendations are intended to support driving instructors to apply the educational concept on all 24 competence classes in order to gain a high implementation quality.

The talk will explain the basics and rationale of the new training concept. Furthermore, the advantages of the proposed training concept, compared to the current state of the driver education system in Germany, are discussed. The advantages include updated training contents (e.g. driver assistance systems), a cost-efficient extension of learning time through elements of self-directed learning (e.g. e-learning, flipped classroom model), systematic learning progress assessments over the entire course of training and, last but not least, a tight integration of theory and practise with reference to the “criteria of good driving” as postulated in the driving task catalogue. At last, an outlook is given on how the acquisition, analysis and linkage of data from both, driving education and driving test, can be utilised to further accelerate the evidence-based development of the entire novice driver preparation system in Germany.

Quellen:

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