

## Electronic media: New possibilities and limits for theoretical driving training

In order to guide applicants for driving licenses optimally through the training, to prepare them for the driving test and to promote their skills, electronic media are increasingly being used as a supporting tool in driving training.

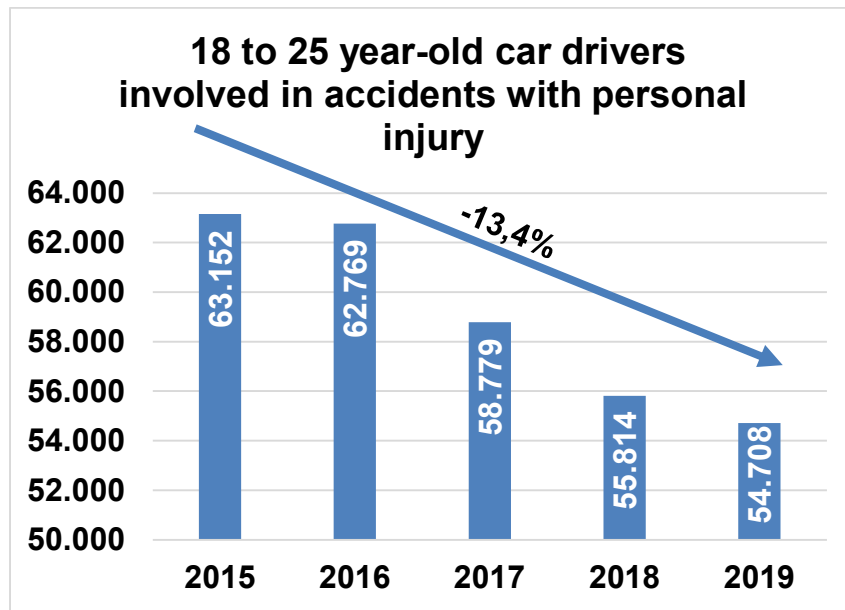
**This development is welcomed in principle by driving instructor associations as well as by established driving schools and driving school publishers.**

Under the burden of the Corona pandemic, there is an increasing call for the introduction of opportunities for "online learning" - mostly under purely economic constraints and fears of individual driving schools and under pressure from individual providers of purely electronic teaching/learning materials who want to open up new markets. Occasionally, demands are also made that call into question the proven system of professional driving training, which has been deliberately implemented in Germany by the legislature, and consider the mere transfer of training content to the Internet to be sufficient.

In the course of these developments, and especially against the background of the already ongoing research project of the Federal Highway Research Institute (BASt) "Approaches to Optimizing Driving School Education in Germany", the following aspects should definitely be considered

- **First of all, a clear definition of the now diverse and fuzzy terms used** (e-learning, synchronous and asynchronous learning, blended learning, online learning, and others) **must be provided to ensure** that all parties involved agree on a coordinated and uniform basis.
- **Electronic media can contribute to increasing the validity of training content and examination requirements in beginner driver training** and thus also lead to an increase in the learning target validity in driving school training and the content validity of driver's license examinations.
- **The benefits of electronic media for novice driver preparation can only be assessed in a specific application context.** The possible uses of electronic media are extremely diverse and range from tablet- or smartphone-supported applications for learning exam questions to elaborate computer-based learning programs, complex driving simulations and virtual-reality-based learning environments. However, an assessment of the usefulness of certain forms of implementation is only possible if the use of electronic media is based on a pedagogical-didactic concept that can be referred to in empirical studies.
- **The use of electronic media in novice driver training must be tailored to the target group.** It is only conducive to learning if the different learning needs and abilities within the target group are taken into account. The necessary target-group orientation in novice driver training explicitly includes that the acquisition of competencies is supported by a broad spectrum of (electronic and non-electronic) teaching-learning methods and teaching/learning media.

- **Electronic media cannot replace traditional face-to-face teaching in driving schools, but they can usefully supplement it by means of "blended learning".** For driving school education, the development of e-learning offers and their integration into scientifically based blended learning concepts are promising in order to impart specific competencies and to open up possibilities for extending the learning time. Only such "mixed" concepts can also ensure that the expertise of the professional driving instructor is incorporated into the teaching-learning process, among other things to determine learning status and progress and to select teaching-learning methods that are oriented to the individual needs within the target group (see above).
- **Blended learning concepts are needed for modern, adaptive, applicant centered support.** Blended learning offers great potential for effectively reducing applicant specific competence deficits at an early stage in the sense of adaptive support that is geared to the individual applicant. The basis for embedding, repeating and deepening contents in blended learning concepts that are specifically tailored to the individual novice driver has already been created in the recent past through the systemic description of training courses and situation-specific driving skills for their recording.
- **Exclusively online theory lessons cannot be the equivalent of classroom instruction in a driving school.** For several reasons, this form of instruction cannot meet the pedagogical-didactical requirements that must be met by qualified theory instruction. Disadvantages compared to traditional face-to-face teaching include the limited possibilities for controlling group dynamics, the significantly lower application possibilities of discursive teaching-learning methods (e.g. discussions, small group work) and formal-organizational hurdles (e.g. controlling participation and attendance). However, it is precisely the interactive group-dynamic processes that are necessary to be able to influence attitudes and motives and thus create the necessary conditions for a safe coexistence in traffic. The constantly decreasing accident involvement of the risk group of novice drivers also shows that the current training system is an important pillar for Vision Zero. For example, the number of accidents involving personal injury in Germany caused by 18 to 25-year-old car drivers has fallen by 13 percent between 2015 and 2019. The number of traffic accidents involving fatalities among 18 to 25-year-olds has actually fallen by 23 percent over the same period, while the proportion of drivers in this age group has remained roughly the same overall.



Data source: Destatis - Accident statistics time series 2019, Wiesbaden 2020

Fatalities by age group	18-21	21-25	Together
2015	210	263	473
2019	189	174	363
Change	-10,0%	-33,8%	-23,3%

Data source: Destatis - Accident statistics time series 2019, Wiesbaden 2020

For driving schools, online instruction is not only associated with a high financial expenditure. Before blended learning is introduced, it must therefore be ensured that all those involved are able to participate by means of sufficient network coverage. The network quality in the regions is so different that this would lead to a noticeable distortion of competition. For learner drivers who do not have the opportunity to use the necessary hardware, there would also be an access barrier to the driving license and thus to mobility.

- **The regionalized knowledge transfer ensured by face-to-face instruction is an important element in the prevention of traffic accidents caused by novice drivers.** The majority of accidents involving novice drivers occur in the immediate vicinity of their place of residence. For this reason, the test binding was also introduced. Classroom instruction provides the opportunity to combine theoretical knowledge with specific regional references in a practical way. In this way, knowledge can be imparted and consolidated in a more targeted manner based on regional characteristics and special features. In addition, the resulting higher emotional involvement of the learner drivers leads to a significantly higher motivation to learn. Online lessons that are detached from classroom instruction, isolated and unspecific to a particular region cannot fulfill the necessary regionalized knowledge transfer.
- **The responsibility for professional driving training must be in the hands of a driving school.** Currently, the quality of the training is the responsibility of the driving school providing the training. If parts of the theoretical instruction are provided by external third parties, it can be assumed that

potentially road safety relevant learning content will not be taught due to a lack of coordination between the parties involved. If, for example, the driving instructor recognizes problems with an applicant during theory lessons today, these can be dealt with specifically in practical lessons without exposing the student to the learning group.

- **The educational authority of the driving schools guarantees barrier-free access to mobility.** The driving schools are currently responsible for the planning, organization and implementation of driving training. In this way, they guarantee each student an individualized training according to time, budget and learning speed and prevent a potential socially discriminating barrier to obtaining a driving license.
- **Before blended learning concepts are introduced, it must be ensured that the driving instructors have been appropriately trained in initial and further training.** This has also been clearly demonstrated by the use of electronic teaching methods in schools and universities.
- **Uniform nationwide standards must apply.** A patchwork of different standards would lead to a quality of driver training that differs from state to state and would jeopardize the high quality and mutual recognition of driver training in Germany as a whole.
- **Driving school education cannot be separated arbitrarily.** The task of the driving school lessons is just not the exclusive preparation for the theoretical or practical driver's license examination. The main purpose of driving education is to train learner drivers to become safe and responsible drivers. The theoretical instruction not only prepares for the theoretical exam, but also for practical driving to a large extent. As a part of the training that is linked and interlinked with practice, it shortens and optimizes the practical training. The transfer of theoretical knowledge into practice is achieved by relating the material taught in practice to what has previously been learned in theory. This is particularly valuable in dilemma situations. An arbitrary separation of the driving training into a theoretical training part not coordinated by the driving school and a practical training part would inevitably lead to a deterioration in the quality of training.
- **The road safety relevance of the driving school industry must not be sacrificed for the desire for digitalization.** The importance of theory lessons - also for practical driving learning - is also reflected in the price calculation of driving schools. If providers from all over Germany take on the responsibility for pure online theory lessons, all that remains is the practical training in the driving schools. This would lead to a mass insolvency of the driving school companies in Germany, just like the similar structural changes in France. This would have far-reaching consequences. In recent years, driving schools in particular have also led to an increase in employment subject to social insurance contributions in Germany. Between 2015 and 2019, the increase in employment subject to social insurance contributions in the driving instructor sector was 22 percent compared to the national average of 8 percent [Central Statistics Service of the Federal Employment Agency, Nuremberg, 2020]. This trend is expected to continue. If the current training model of driving schools were to be destroyed, models such as those in Switzerland or the United States with their negative consequences for the quality of training and road safety would be the logical consequence. It should also be mentioned that Switzerland, with the Opera project comparable to the current BASt project OFSA2, is tending back to face-to-face teaching. This would also result in a significant increase in the cost of practical training and thus in the overall increase in the cost of driving license training.

## Summary:

Learning using electronic media also offers potential for developing new teaching and learning goals and examination content in driving education, as well as for organizing teaching-learning processes. Blended learning" is suitable for this purpose because this form of implementation allows the specific advantages of traditional class-based theory instruction to be optimally harmonized with the primarily self-directed learning on electronic terminals.

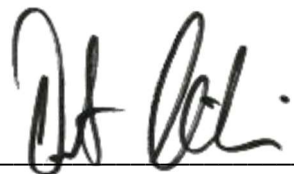
A mere transfer of today's theory lessons to the Internet, i.e. the implementation of "online theory lessons" may work to some extent as a temporary stopgap solution in view of the Corona crisis, in order to implement recommendations of the federal and state governments on infection protection. Advantages in terms of learning effectiveness are not to be expected from "online theory classes". On the contrary: A loss of methodological diversity, of commitment, of individualized support and thus also of learning effectiveness would be the consequence and would lead to the expectation of lower driving skills at the end of the training.

Moreover, the introduction of online theory classes not only risks creating a barrier to mobility for part of the population. It would also radically change the existing industry structure. As a result, an entire sector of small and medium-sized enterprises would face the threat of insolvency or could only prevent this by making practical training considerably more expensive.

Pedagogically founded concepts for the target group and needs-based use of electronic media must now be developed and the learning benefits of these concepts empirically examined.



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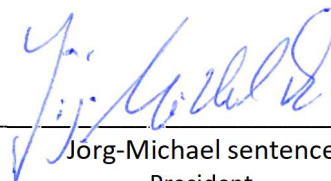
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