

Clever and environmentally-protective driving in traffic



HAST DU DIE GRÖSSE?
FAHR MIT VERANTWORTUNG.

Training and testing young drivers in a modern way



Bundesministerium
für Verkehr, Bau
und Stadtentwicklung



Bundesvereinigung der
Fahrlehrerverbände e.V.



Deutscher
Verkehrssicherheitsrat e.V.

drive cool
save fuel

Dear reader

Driving in traffic is not a simple matter like switching on a television set or the movement of an eye. Driving in traffic is constant movement in a system with many emotions, feelings and regulations. It could be compared with a "social happening", similar to a football match or the Oktoberfest, or also a relationship – stimulating, exciting – and you don't know exactly what will happen.

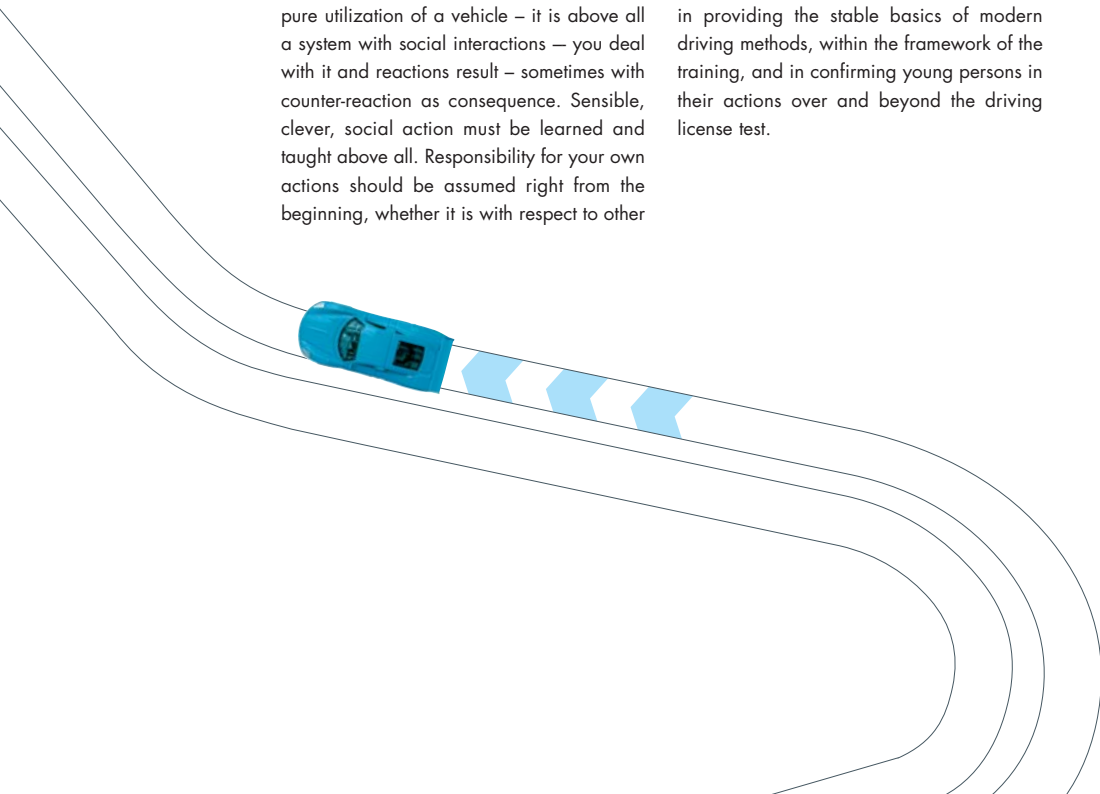
In this case, driving a car is itself the art of understanding the "social happening" and participating in it skillfully. As beginner drivers, young persons must learn right from the beginning, faults will not be tolerated. Road traffic is not just an inflexible movement system. Car driving is more than the pure utilization of a vehicle – it is above all a system with social interactions – you deal with it and reactions result – sometimes with counter-reaction as consequence. Sensible, clever, social action must be learned and taught above all. Responsibility for your own actions should be assumed right from the beginning, whether it is with respect to other

traffic participants, the car passengers, however, also the environment, which is very stressed by the diverse and increasing mobility of our times.

Young persons need the necessary equipment for their start as independent drivers, in order to be capable of accepting this responsibility. For this, stable basics must be put in place within the framework of the driving training, which cannot be changed very easily through external influences.

Modern, present-day driving technology and tactics, right from the beginning of training, are an opportunity where present-day driving culture can adapt appropriately.

This compendium should support you in providing the stable basics of modern driving methods, within the framework of the training, and in confirming young persons in their actions over and beyond the driving license test.



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The world of the teenager – life in the fast lane

You would be amazed sometimes about how fast driving can change after the driving license test has been passed and how quickly certain behavior is rejected while other (also unsafe and dangerous) behavior is adopted.



But if examined in detail, there are explanations for that. Young persons are in a very difficult and eventful phase of life. They are occupied with many facets of social coexistence, the search for their own way, the finding of a future perspective, loving and dramatic experiences with partnerships or

also dealing with influences from circles of friends. From a neurobiological viewpoint, this phase of life is described as follows: "Their brain is a highly animated construction site on which scaffolds are continuously being erected, new connections made and old rejected (cf. GEO 09/2005)".

Thanks to present training and testing, young persons start driving in traffic with very good basics, which enable them to continue to learn further. However they have until then relatively little driving experience (800 – 1000 km) and they encounter diverse situations which they cannot in any practical sense be trained for or tested for – they must learn this in their own driving without having the required support.

From a neurobiological viewpoint, this circumstance is described as follows: "Seen from a neurobiological viewpoint, teenagers still resemble a full airbus that careers down the runway with vibrating drive mechanisms, while in the cockpit the monitoring instruments and navigation systems are still being screwed in (cf. GEO 09/2005)".

Modern traffic requires that important basics must be learned and adopted so securely that they can be overturned by external influences only with very great difficulty, therefore the "monitoring instruments and navigation systems" corresponding to that are already quite securely mounted.

Whoever speaks the language of youth, gets ahead

It is important to enable young person to learn and try things out, to awaken their interest and to accompany it in their development.

For the communication (cf. Rheingold 2001) of driving behavior, both in training and in testing, the following (among other things) must be in place:

- It must be placed in central focus that mobility is in the service of ever-changing love or life questions;
- It must be signaled to young persons that their mobility development does not occur in a vacuum, rather under the attentive and participating supervision of adults;
- Mobility and personality development must be made into something perceived as a stimulating process and it must be demonstrated that, through observation of regulations and the acquiring of driving styles, advances in overall development will be achieved;

- Traffic must be presented as a challenge that cannot be overcome simply;
- It must be taught that perfection in traffic is impossible and only those who have undergone an apprenticeship beforehand are capable of approaching it – with all their fears and faults.

In order to achieve the necessary acceptance for certain driving behavior with young persons, terms must be selected which arouse curiosity and represent the behavior as desirable.

"Energy-saving driving" or "environmentally-protective driving" represent terms which are not only associated by young persons with "slowness" and "crawling along", and are thus rather counter-productive in assuring stable acceptance of modern behavior. Before the first hour of training, modern driving should be communicated as normal, exciting, responsible and desirable. This compendium deals with this.



You drive as you feel: the ideal driver

The so-called GDE (Goals for Driver Education) matrix includes all significant factors and target levels, which should include the driving training according to GADGET experts from eight countries, which has been established Europe-wide. In this case, it can be concluded that the psychological and social influences on driving behavior must be provided with more weight. Participation

in traffic is not determined primarily by regulations and conscious behavior, rather it is subject to psychological and social factors which can massively influence and change behavior. It must be prevented by the acquisition of maximally stable basics that influences from outside allow rapid change in an undesired direction.

GDE matrix (Hatakka, Keskinen, Glad, Gregersen, Hernetkoski: 2002)

| Hierarchical levels of driving behavior | Significant training contents | | |
|---|---|---|---|
| | Knowledge and capabilities | Risk-increasing factors | Self-appraisal |
| Life objectives and capabilities for living (general) | Knowledge/Control about how life objectives and personal tendencies influence driving behavior e.g. life-style and circumstances | Risky tendencies e.g. consumption of alcohol and drugs | Self-appraisal/ Consciousness e.g. motives contravening safety |
| Intentions and social context (with reference to driving) | Knowledge and capabilities e.g. concerning the necessity of driving | Risks associated with e.g. social circumstances and society | Self-appraisal/ Consciousness e.g. of personal capability for planning |
| Mastering of traffic situations | Knowledge and capabilities e.g. concerning anticipation of the situation progress | Knowledge and capabilities e.g. risk increasing driving style (among other things, aggressive) | Self-appraisal/ Consciousness e.g. of personal safety margins |
| Vehicle operation | Knowledge and capabilities e.g. concerning control of direction and position | Risks associated with e.g. inadequate automatic reactions/capabilities | Consciousness e.g. of strengths and weaknesses with elementary driving ability |

Modern driving cannot be taught through practical training only, but must be brought in association with theoretical aspects of social behavior and it must be themed.

Accelerating calmly – modern driving methods in overview

Modern, present-day driving methods are characterized by calm dealing with routine driving tasks and is characterized on this level by the following driving techniques in particular:

- Swift acceleration
- Rapid change into the next higher gear at a rotation speed of approx. 2000 and 2500 rpm. (diesel absolutely earlier)
- Uniform driving in the highest possible gear
- Maintenance of an increased safety margin (e.g. 3 seconds)
- Removing the foot from the accelerator at an early stage, if it is identified that a stop must be made
- Utilization of momentum (whether it is through rolling in neutral gear or with clutch disconnected or by using the cruise control) as soon as it is identified that you cannot drive further and to further depress the accelerator is therefore useless
- Switching off the engine in case of a stop which can be identified as lasting more than 20 seconds in known situations
- Correct tire air pressure, in order to keep rolling resistance low

Young persons' experience it as especially pleasant if uniformity prevails during driving, without hasty load alternations, and driving occurs as relaxation and a separation distance to traffic in front is kept which allows sufficient handling space. This is experienced by young persons as a "social" component.

Early gear-changing in the low-speed range (under 2500 rpm) and switching off the engine in case of longer wait or stop situations, on the other hand, is observed rather as a technical component that occurs by itself as if well trained, but does not represent any special social challenge, unless it has been deficiently trained.



Communicating the technical and social components

In experiencing their driving style, young persons differentiate very significantly between technical and social components.

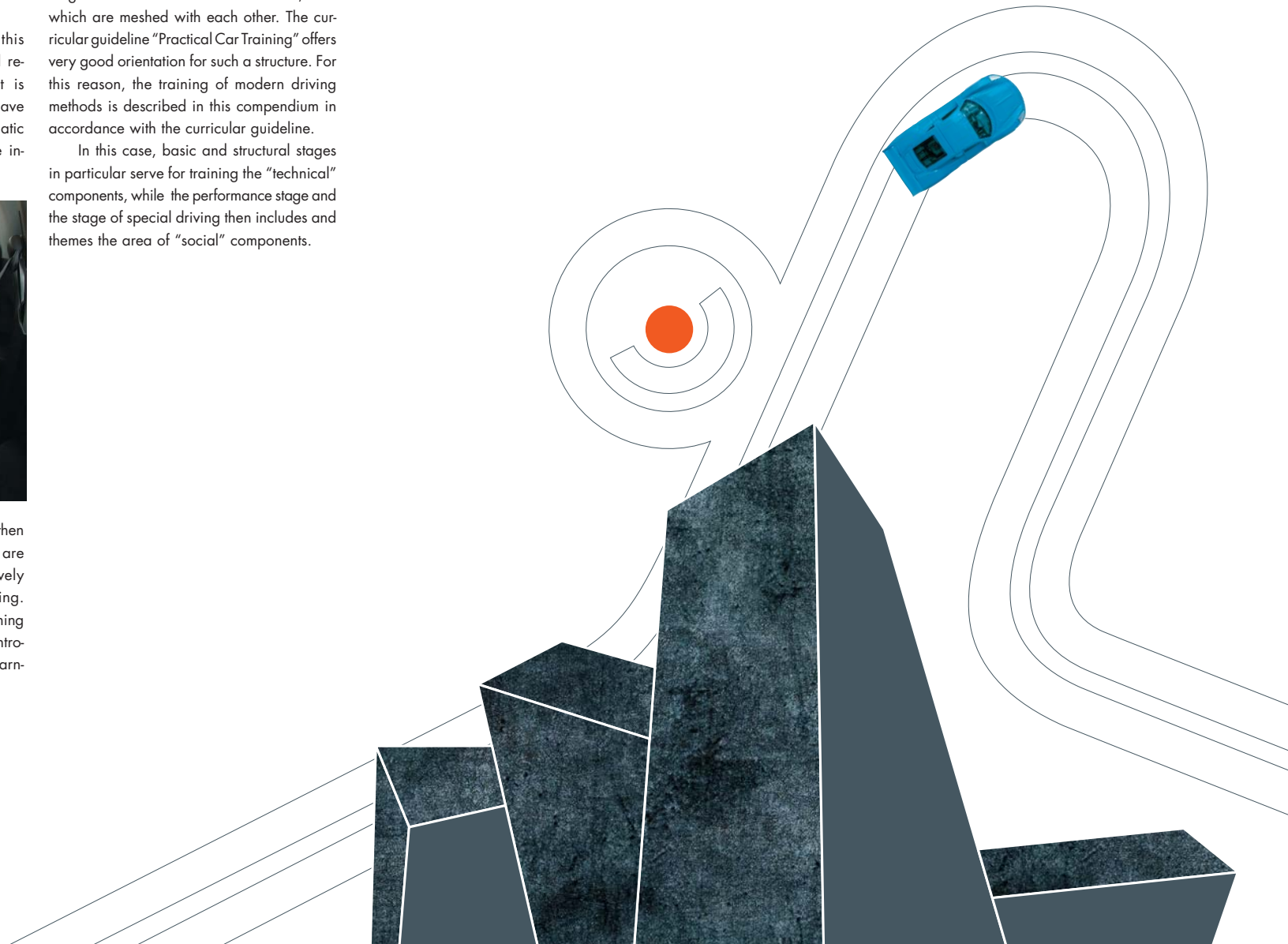
The technical components serve in this case for the operation of the vehicle and represent an extremely important basis. It is valid here that the technical components have had to be learned up to the point of automatic reaction, and the social aspects are to be included in the training after a time delay.



The social components, on the other hand, then serve to cleverly master the demands that are associated with daily traffic and to actively organize dealing with traffic when driving. If this results in an over-freighting of the learning process, for example in case of too early introduction of social aspects, an impressive learning success can be quickly disturbed.

Training must therefore be carried out in stages coordinated with each other, and which are meshed with each other. The curricular guideline "Practical Car Training" offers very good orientation for such a structure. For this reason, the training of modern driving methods is described in this compendium in accordance with the curricular guideline.

In this case, basic and structural stages in particular serve for training the "technical" components, while the performance stage and the stage of special driving then includes and themes the area of "social" components.



Environmentally-protective driving methods on a basic level

The objective of the basic level is the attainment of psychomotor basic skills and elementary basic knowledge for correct gear selection, in particular also with reference to present-day, modern driving methods.

The training of a safe, modern gear changing sequence with the different, available gears, as well as the creation of the basics for a purposeful momentum utilization according to motor vehicle type, are the objectives of the basic level. Fuel consumption and the emissions of an engine are primarily dependent on its rotation speed. The higher the rotation speed, the greater the fuel consumption. The present engine generation makes driving possible in the low-speed ranges.

This means that gear changing and driving at rotation speeds under 2500 rpm is possible without problems.

An engine reaches its operating temperature in high gear at low rotation speed faster than e.g. in low gear with higher rotation speed. If the vehicle "jolts" however, the selected rotation speed is below the idle speed and thus is just below the normal speed range.

The mastering of all gears, as well as neutral, without having to look at the gear lever, is a necessary prerequisite in order to be able to safely drive a vehicle.

A swift acceleration and fast gear changing into the next higher gear should be trained. The gear-change engine speeds with a vehicle with a diesel engine is generally below the gear-change engine speeds of an ignition engine.

In case of vehicles without rev counter, the following rule of thumb can generally be a good help:

- 1st Gear • only for the start-up
- 2nd Gear • (after approx. one vehicle length)
- 3rd Gear • above approx. 30 km/h
- 4th Gear • above approx. 40 km/h
- 5th Gear • above approx. 50 km/h
- 6th Gear • possible above approx. 50 km/h

Simultaneously, skillful rolling of the vehicle should also be trained in this phase. This can happen through engaging neutral, by stepping on the clutch or by using of the cruise control (if existing). The finding of the gear suitable for the speed must also be trained here, without having to look at the gear lever. The automatic lever remains always in the driving stage D.

BASIC LEVEL

1.7

Operating the control lever

1.8

Ignition lock

1.10

Starting practice in 1st gear

1.11

Changing up to 2nd gear

1.12

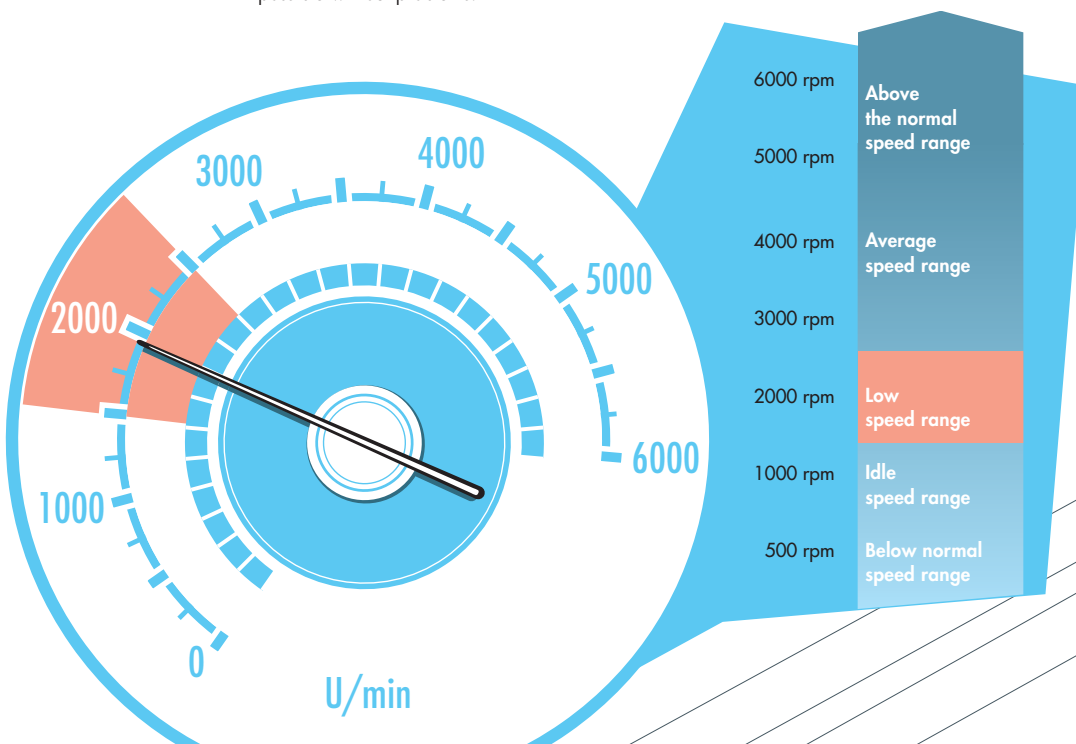
Changing up to 3rd gear

1.13

Changing up to 4th gear

1.14

Changing up to 5th gear



Environmentally-protective driving methods in the structure stage

STRUCTURE STAGE

2.1

Letting the vehicle roll and changing gear

2.2

Slowing down and changing gear

2.6

On a slope

In the structure stage the techniques learned should now be combined and refined. For this, appropriate practice is required which supports young persons in getting the necessary understanding and training in handling.

Since many learners (and also experienced drivers) cannot judge how long a vehicle will actually roll in neutral or with the clutch depressed, it is recommended to engage neutral from a higher gear or simply to let the vehicle roll with depressed clutch.

Also, there is the feeling that an engine will stop running if the vehicle is allowed to roll in neutral without depressing the accelerator. In order to provide experience here, it is recommended, with the clutch engaged, to take the foot off the accelerator at e.g. 40 km/h in 4th gear and to let the vehicle roll to the jolting limit.

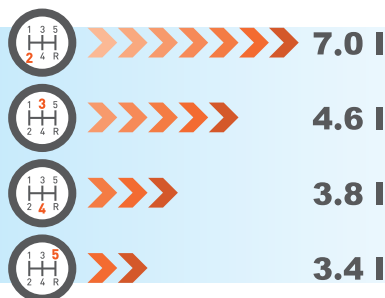
In addition, the point should be referred to that on a flat road at idle speed the vehicle would keep on going until the tank was empty.



The use of momentum may never be employed on a slope. There the selection of the correct gear is to be trained.

(As rule of thumb; when the speed increases with momentum utilization – whether it is with cruise control or with depressed clutch and/or in neutral gear – the appropriate gear that prevents “speeding up” must be engaged.)

Consumption at constant driving at 50 km/h in different gears



The consumption for 6th gear has not yet been determined.

Environmentally-protective driving methods in the performance stage and stage of special driving

The performance stage and the stage of special driving serve now to include the social aspects, on the basis of stable competencies in the “technical” area. In this case, it is advisable not to take this on too early, so that no over-freighting results. Now it involves driving with low rotation speeds and the utilization of momentum to progress to more complex traffic situations.

In these stages it is important to confirm young persons again and again in the application of techniques, but also to train for those situations in which it is necessary, for reasons of safety, to also supply higher rotation speeds in the short term, in order to achieve optimum acceleration. Associated with these situations are the following e.g.:

- Driving on the autobahn;
- Implementation of overtaking maneuvers;
- Gear changing on gradients.

In such situations, the gear must be selected which best guarantees the necessary acceleration for this driving maneuver.

As already suggested, the subject “use of momentum” must now be applied to more complex traffic situations and practiced. Furthermore, if not already very well marked, the correct gear selection must be supported in this case.

For those concrete situations in which the “use of momentum” should now be practiced and trained, the following apply (among others):

- Rolling up to a red traffic light or a traffic light that will change to red while driving up
- Rolling up to a “Stop” sign or “Yield” sign
- Rolling up to crossings or branching roads, in order to exit

- Rolling up to obstacles
- Rolling up to speed-limit signs
- The use of momentum in “stop and go” traffic.

Maintaining an increased separation distance (so-called buffer separation distance) ensures that young persons see how their handling space is significantly extended. In this way, an active influence is taken on the traffic situations, instead of reacting passively. The training of maintaining an increased separation distance is of special importance in this training phase. Young persons perceive this as a well acquired capability in social handling, since they have sufficient room and time to enable reaction to situations.

The enlargement of the safety margin has numerous advantages:

- The drive lane can be changed at an early stage before an obstacle.
- Speed variations can be balanced more uniformly.
- The danger that an aggressive following car rear-ends you is reduced, since strong braking is seldom required.

In this phase, as well as the training, an evaluation for selection of an increased separation distance should also occur, and the advantages connected with that should be emphasized.

PERFORMANCE STAGE

3.1

Overcoming traffic situations

3.5

Using momentum

4.1

Speed, separation distance and training in keeping a lookout

4.2

Driving in crossings (...)

4.4

Gradients

4.7

Overtaking

4.11

Driving onto the autobahn

4.12

Driving on the autobahn

4.18

Behavior in dense traffic

The environmentally-protective driving methods in the test

Training is a very important phase in educating young persons to become responsible drivers. Right from the beginning, the described driving technique should be consistently communicated. Whether the learners learn to change from 1st to 4th gear or from 1st to 6th gear is not of identifiable importance for them in this case. They do what is expected by them. It is important that this becomes an automatic reaction – the more intensely it is practiced the more natural the application.

The driving license test is a further, very important phase. It represents the transition from the learner to the autonomous driver and remains (as with other tests as well) long in the memory. In the test it should be determined not only whether a learner can drive a vehicle safely and according to regulations through traffic. In the same way, safe behavior should be confirmed or weaknesses which appear should be designated as such. Thus most drivers can still remember quite exactly what the driving license tester communicated to them.

The role of the driving license tester in this situation is therefore not the role of a person who dispenses driver's licenses according to his pleasure and mood. Rather, he take on the role an independent, neutral and competent observer, who delivers an evaluation which remains permanently remembered.

It is exactly this competence which should be used sustainably in order to give young persons support for their actions when driving, which remains fixed in the memory. With this understanding, a very important, pleasant and stimulating role can be applied to the driving license test. Neutral, independ-

ent and as confirmation it is stated which strengths are present and where optimization requirement still exists.

Nothing disturbs a begun, secure learning session than the "putting in question" of a modern driving technique that sustainably exploits the possibilities of modern engines. In this respect, it is important to motivate the young persons through confirmation that they are on the correct path, and should further pursue this path consistently.

If, nevertheless, the situation should occur where the driving instructor and driving license testers represent different opinions, this is only human, however, it should be discussed only between the two persons involved.

In the phase of driving license acquisition, on the other hand, any disconcertion should be avoided. Rather, strengths must be promoted by praise and acknowledgement. This supports their application – an important and sustainable step to durable anchoring of environmentally-protective and modern driving methods. It is furthermore important, in case of a passed test, to emphasize this behavior as being very well applied. With this, the permanent adoption of environmentally-protective driving methods is sustainably supported and promoted through the statement of the independent, neutral and competent expert.

Environmentally-protective driving methods in case of BF 17 – an opportunity to propagate modern driving techniques

"Accompanied driving from 17" offers new opportunities to propagate a modern driving culture. Participants in the model "Accompanied driving from 17", as well as the other driving license applicants of Class B, go through the driving training without cutbacks, in order to start with the necessary basic competence.

The opportunity which results with BF 17 is that young persons are able to pass on their acquired driving style to their companions, and so an adoption of the driving style becomes possible with many practical examples and through interested observation and is a pleasant experience.

With companions, the majority of drivers will be involved who refer back to a large experience base in traffic, however, within the framework of their driving training, were confronted only relatively with the environmentally-protective driving methods. Indeed one can assume that driving techniques may be known about in theory, however, their consistent application is rather not expected. Nevertheless, in this respect it is to be

expected that the modern driving style will be a new thing for most of the companions. However, it is rather difficult to get away from old habits in driving a car. This then has the danger that the young persons could possibly get feedback about their driving technique, which has the effect of disconcerting them and not reassuring them.

If the occasion arises, the future companions should therefore be provided with initial insights into environmentally-protective driving methods in practice, as early as during driving training. However, this must be clarified, at the latest, at the start of the accompanying phase, so that no different opinions arise here between the young persons and the companions.

Initial results indicate that, after driving, very intense discussions occur between young drivers and their companions. A desirable effect: Demonstrated behavior is spoken of, exchanges occur and companions are ready to reconsider their own behavior as well.

Environmentally-protective driving methods in case of FSF – professional support and reinforcement

The “advanced training seminar for beginner drivers (FSF)” pursues the objective, on the basis of independently acquired driving experience, to theme and to scrutinize behavior changes in order to educate secure strategies for the future. It must be assumed that driving behavior changes with time, since new situations are experienced and diverse influences from outside co-determine driving behavior. Unfortunately, these very natural changes are not always positive.

With the “advanced training seminar for beginner drivers (FSF)”, environmentally-protective driving is dealt very consciously in several sequences, and handled in order, on the one hand, to confirm young persons in their behavior or to build up again any possible previously-learned driving behavior.

The practice and monitoring drive occupies a central position in this case. It also serves for young persons receiving feedback acknowledgement of their driving behavior from people of the same age and, in addition, it includes purposeful training sequences with professional support. After the purely monitoring drive has been completed (approx. 20 minutes), the seminar leader becomes the coach and has the clear task of training for predetermined traffic situa-

tions, on the basis of formulated desires of the participants. The participants should be explicitly confirmed here in the application of environmentally-protective driving techniques and/or be encouraged in their application. Regular references serve to build up and strengthen environmentally-protective driving. This means that positive behavior must be confirmed (e.g. with the statement: “it’s really cool that you are now using 5th gear”) or encouragement is given to try things out (e.g. with the statement: “change into 5th gear now”).

Not only does the driver experience the application in real situations, but also the traveling observer associates the application with concrete traffic situations.

Environmentally-protective driving methods in case of ASF or ASP – professional support and reinforcement

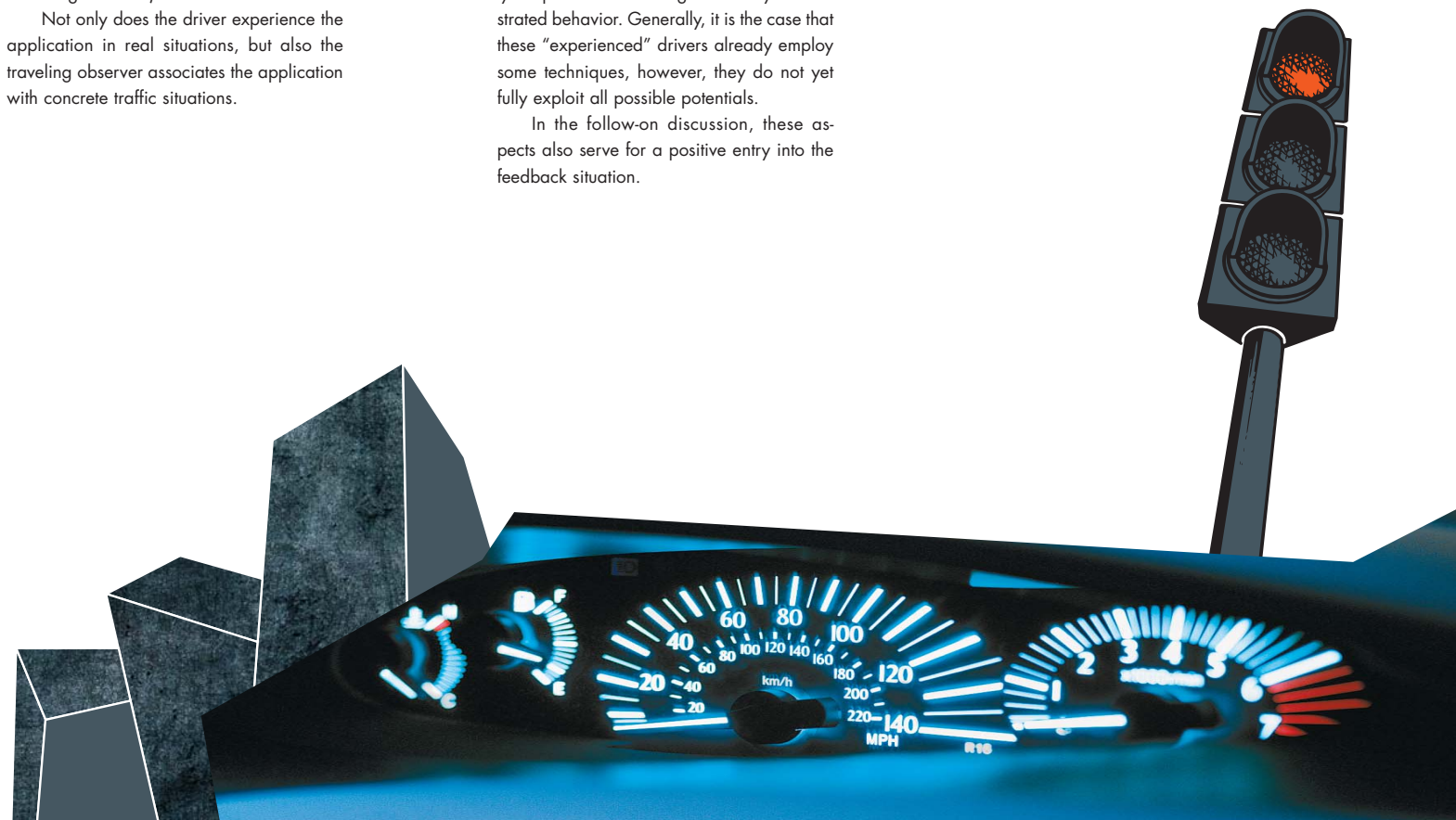
Also in the structuring seminars for beginner drivers (ASF) and/or for drivers with points (ASP), the opportunity is offered to address environmentally-protective driving and to motivate the application of the driving techniques.

In this case, after the observation and test drive, the participants of both structuring seminars frequently have the desire to get concrete feedback acknowledgement and hints on their driving style from the seminar leader as well.

This occasion should be used consistently for positive reinforcing of already demonstrated behavior. Generally, it is the case that these “experienced” drivers already employ some techniques, however, they do not yet fully exploit all possible potentials.

In the follow-on discussion, these aspects also serve for a positive entry into the feedback situation.

Formulations, such as “I really liked it when you engaged 5th gear so early on Musterstrasse” or “It struck me that you took it out of gear while driving up to red traffic lights. I found that very pleasant. You could even do that earlier”, confirm, on the one hand, the driver and motivate him to further application, while, on the other hand, contribute to the fact that the traveling observers get stimuli to adopt.



Environmentally-protective driving methods in theory

Within the framework of theoretical instruction, the elements of environmentally-protective driving methods can be addressed. In the sense of the GDE matrix (see Page 6), there is a dispute on different levels. Driving is determined by technical and social components, as already previously described. These two components should not be discussed and dealt with in common in this case, rather they should be consistently assigned to the individual project areas, considered separately from each other.

This also supports the intention to represent environmentally-protective driving methods as something normal and not as something special.

Correspondingly, transparencies are available for an explanation in the processing of the technical components, while, for the rather more social components, trigger situations and/or trigger films serve to introduce certain behavior situations in order to discuss these in common.

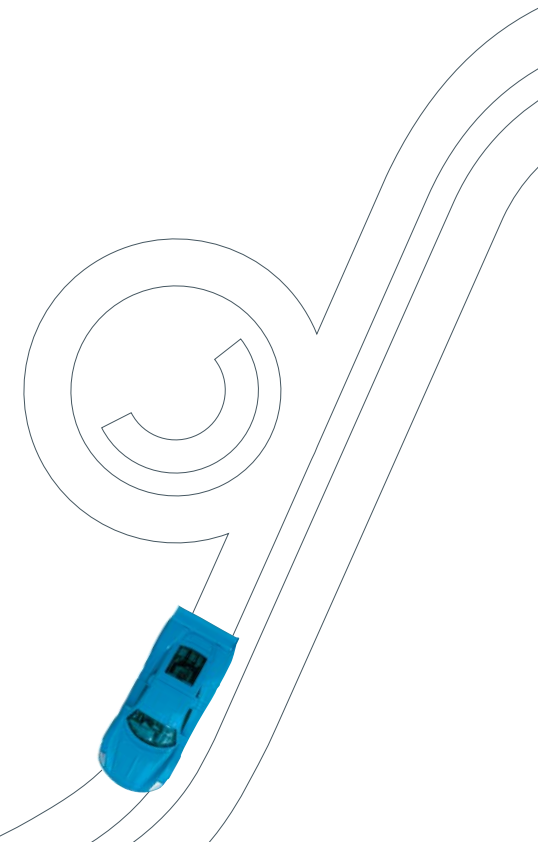


The technical components

The technical components of environmentally-protective driving methods should rather be assigned to the Levels 1 and 2 of the GDE matrix. It is a question in this case of aspects of vehicle operation, which is a preparation for the necessary action examples, the removal of incorrect technical ideas and the explanation of certain tips (e.g. to switch off the engine where it is appropriate). The area of "Technology" in the class-specific additive for the Class B is recommended for that.

With the available content transparencies, the following (among other things) can be clarified:

- A direct connection exists between engine rotation speed and fuel consumption
- A direct connection exists between engine rotation speed and acoustic volume
- There are situations where it is of benefit to switch off the engine. This also supports the intention to represent environmentally-protective driving methods as something normal and not something special
- Gear selection is dependent on the engine rotation speed and the vehicle speed, and only in special cases of traffic situations (where stronger acceleration is necessary)
- A desirable speed range (low-speed) exists, in order to give an orientation for the future
- Undershooting the idle speed (jolting limit) has as result that the engine does not run smoothly and a gear change or the engaging of neutral or the selection of idle running is required



The social components

The social components of environmentally-protective driving methods represent a special, but very desirable challenge for young persons and must be handled as such. Here, it is a question of a targeted influencing of young persons on the Levels 3 and 4 of the GDE matrix. Here, it is indicated that young persons accept responsibility, not only for themselves, but also for others. The desirable objective is: "With me you should all feel good!"

This is achieved in particular by uniform, balanced driving methods, which are sustainably supported by the selection of a correspondingly large separation distance from the vehicle in front.

At the same time, young persons must be prepared for the fact that this normal driving style is looked on as rather unusual by others, and that it can lead to discussions, since this was formerly taught differently. By means of basics which are as stable as possible, it must be prevented that influences from outside allow a rapid change. Stable basics are created when young persons identify and accept the advantages by themselves, and not when they are offered on a plate.

Therefore selected trigger situations, based on short spots, are available for dealing with the social components of environmentally-protective driving. They serve as an introduction to the subject and stimulate discussions and disputes within the group and also theme behavior.



Handling modern driving methods in discussion

There are three spots on the DVD which all theme modern driving methods in a different way. These spots represent a good starting point for a discussion with young persons. The objective should be that young persons identify which factors distinguish some driving methods which they experienced as pleasant.

In small groups, it can then be identified with the following "triangular method" what in fact young persons actually desire when they think about driving styles. They are currently identified as car passengers in this case. It is exactly in this role that they are specialists.

Procedure in the application the "triangular method": Each of the three small groups gets approx. 10 minutes time to fill out a flipchart with possible descriptions. After that, a change is carried out clockwise and the small groups have to carry out the task of adding extensions in only approx. 5 minutes. After that, a change is carried out clockwise once again, and now approx. 3 minutes remain to once again carry out extensions.

If all three groups are ready, it is now simply a question of exchanging the headings of the individual flip charts as follows. Thus the prepared results represent a handling direction for future behavior.

- I will do that, so that my car passengers feel really good!
- I will avoid that, because my car passengers should feel good!
- I tell my car passengers that they should do the following if I do not drive in this way, that they feel good.

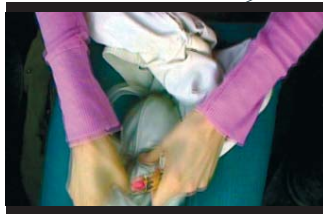
WHAT MUST YOUR DRIVER DO SO THAT YOU AS A PASSENGER FEEL REALLY GOOD?

HOW DOES YOUR DRIVER REALLY DRIVE IF YOU AS A PASSENGER DO NOT FEEL GOOD?

WHAT CAN YOU DO IF YOUR DRIVER DOES NOT DRIVE AS YOU WOULD WISH?

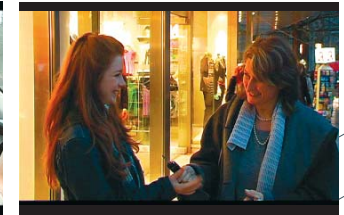
Film "Parents Visit"

A young man would like to present his girlfriend to his parents. It is a very urgent case for him. The girl must still fix herself up somewhat in the car. Due to the driving style of her boyfriend, which was hectic and without any foresight, she does not succeed in this at all well, however.



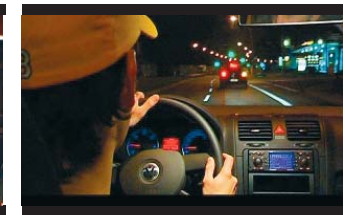
Film "Mother - Daughter"

A woman is with out on a shopping trip with her daughter. In the eyes of the mother, the girl is a rather inexperienced and bad driver. During the drive, however, the daughter turns out to be the one who is truly in the know because she masters modern driving methods so well that she convinces even her mother.



Film "Disco Stag"

A clique of friends travels with two cars to a disco. The "disco stag", a cool, macho type who likes to step on the accelerator, is in one car. In the other car is a young man who masters modern driving methods. The "disco stag" drives with little regard for economy and must refuel. An aspect from which the other young man ultimately profits...



Appendix I: Legal background

Safe, economical and environmentally-protective driving techniques have been integrated into training with the new version of the driving instructor legal and driving-license legal ordinances. This section presents in abbreviated form the basic important stipulations:



§ 1 (1) *FahrschAusbO*.

“The objective of the training is qualification to a safe, responsible and ecology-minded traffic participant. (...)”.

Thus the objectives and the content of the training are described in § 1 (1) of the driving school training ordinance. The new weighting illustrates that the objective of the training is the qualification to a safe, responsible and ecology-minded traffic participant. The preparation for the driving license test is a further component part of the training in a secondary sense.

As a result, the *FahrschAusbO* is implemented in § 1 (2) such that the training has to provide for traffic behavior which also includes responsibility for the environment, as well as responsibility for lives and health, as well as property.



§ 1 (2) *FahrschAusbO*.

“A traffic behavior has to provide the training, that (...)”

– Includes responsibility for lives and health, environment and property.”

It is correspondingly clearly observed in § 3 (1) that the training of a learner driver has to be based on the previously mentioned objectives. In this case, the training contents are to be selected and handled so that the objectives are achieved.



§ 3 (1) *FahrschAusbO*.

“The training has to be oriented to the objectives of this ordinance. (...)”

In the description of the theoretical instruction according to § 4 *FahrschAusbO*, Enclosures 1 and 2 on the general plan are referred to. Some elements of economical and environmentally-protective driving methods are listed there as examples.



Enclosures 1 and 2 to § 4 *FahrschAusbO*.

- Ecology-minded driving through crossings and branch roads (Enclosure 1, No. 5),
- Safety and ecology-minded behavior at level crossings (Enclosure 1, No. 6 b),
- Knowledge of the interconnections between speed and emissions of pollutants (Enclosure 1, No. 8),
- Selection of environmentally-protective speeds (Enclosure 1, No. 8),
- Noise protection (Enclosure 1, No. 8),
- Course for environmentally-protective driving methods (Enclosure 1, No. 12),
- Energy-saving driving methods (Enclosure 2.2, No. 1 c),
- Environmentally-protective driving and defensive driving strategies (Enclosure 2.2, No. 1 c).

The same also applies for the general plan of the practical instruction according to Enclosures 3 – 6 to § 5 *FahrschAusbO*.



Enclosures 3 - 6 to § 5 *FahrschAusbO*.

- Environmentally-protective adaptation of the gear changes to the traffic situation, road conditions and road type (Enclosure 3, No. 3.1),
- Changing gear on gradients and hilly sections, also with a view to environmental impact aspects (Enclosure 3, No. 3.2)
- Ecology-minded adjustment of the driving speed to road, traffic, visibility and weather conditions (Enclosure 3, No. 8.1)

The formulations in the driving license ordinance (FEV) for theoretical testing (§ 16) and for practical testing (§ 17) support the detailed listings of the driving school training ordinance, since the applicants for a driving license must verify in the tests that they have sufficient knowledge of ecology-minded and energy-saving driving methods, and they

must indicate that they are capable of the application of such parameters in practical testing.

Accordingly, the formulations are also defined in the test directive, which clarify again which place-value economical and environmentally-protective driving methods have in driving training:



Test Directive

Point 5 Practical Test

In practical tests, the applicant has to verify that he is in possession of sufficient knowledge of ecology-minded and energy-saving driving methods, as well as being capable of their application.



Test Directive

Point 5.18.1.2 Practical Test

Aside from the erroneous behavior mentioned in 5.18.1.1, the repetition or accumulation of different faults, e.g. fault in case of ecology-minded and energy-saving driving methods, can also lead to failing a test.

Appendix II: Modern driving methods from the viewpoint of science

Since 1995 the Deutsche Verkehrssicherheitsrat e.V. (German Traffic Safety Council), with its partners "Commercial Trades Social Insurance against Occupational Accidents" and "Federal Union of the Association of Driving Instructors", has been developing suitable concepts, in particular for influencing professional, high-mileage drivers with a lot of driving experience. In business application, not only the Commercial Trades Social Insurance against Occupational Accidents, but also the companies themselves are very interested in acquiring scientific knowledge about the effect of these measures. It is not primarily a question of fuel saving here, rather the reduction of accidents and the promotion of calm driving methods.

Therefore the Deutsche Verkehrssicherheitsrat e.V. and Commercial Trades Social Insurance against Occupational Accidents in past years have commissioned several research projects, which should provide knowledge (and in fact have provided knowledge) about the long-term effects of these measures in particular.

With Hamburg Waterworks and Bremen Public Utilities, based on the existing data records, it was possible to carry out a comparison 11 – 12 months before and after the training measure in each case, in order to obtain knowledge about fuel consumption and saving, and about increasing safety. In addition, based on psychological aspects and surveys with the employees, it could be checked which acceptance is to be determined with regard to an adoption of the driving methods.

In the following text some results are presented as examples, in order to indicate which effects can be achieved with experienced drivers who drive routinely every day. If these techniques are communicated and taught consistently right from the beginning, a higher potential can be assumed, since behavior trained over years does not have to be changed.

The effect of the training of these driving techniques leaves traces with the employees, which remain in their minds for a long time and promote change:

Overview of the image 2003

- **Tradition**

Gray theory, regarded skeptically

- **Impressing**

Undesired intervention at the beginning "blossoms" to undreamt-of dynamics

- **Arrangement**

Measure of the "S Class" – appropriate, safe, economical and true

Inconspicuous training measure pulls in groups and, according to the principle of operation of pars per toto, unveils a high efficiency and change potential

- **Perspective**

Transferability to business overall context

- **Change**

Burden of proof verification for convertibility of usual relationships

- **Factuality**

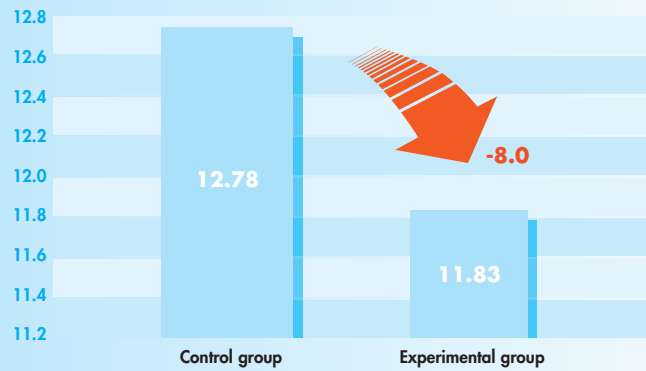
Compact training with handling approximation and plausibility

As well as the psychological effect, hard facts that clarify the advantages and sustainable effect of the driving techniques could also be determined in the above-mentioned research project:

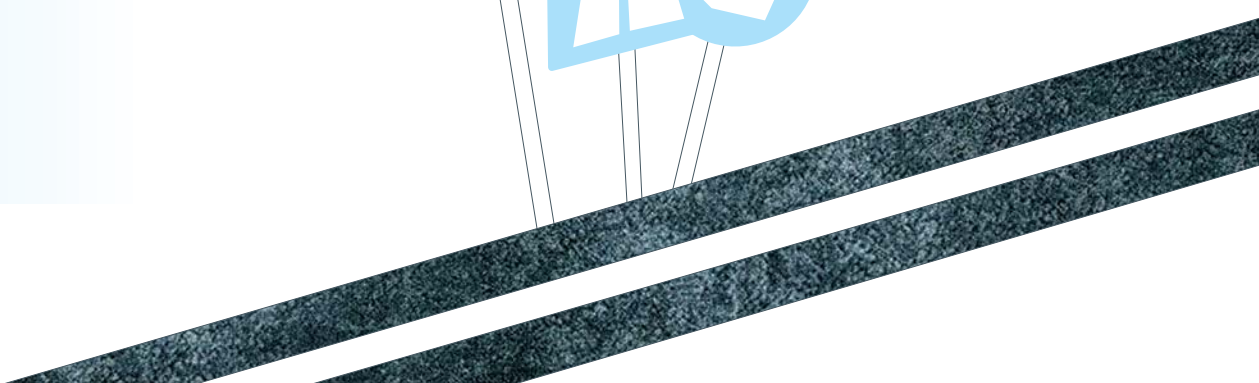
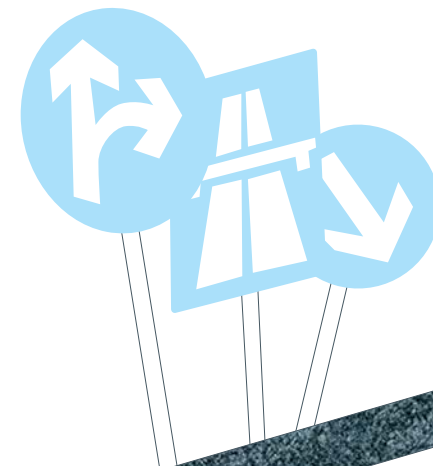
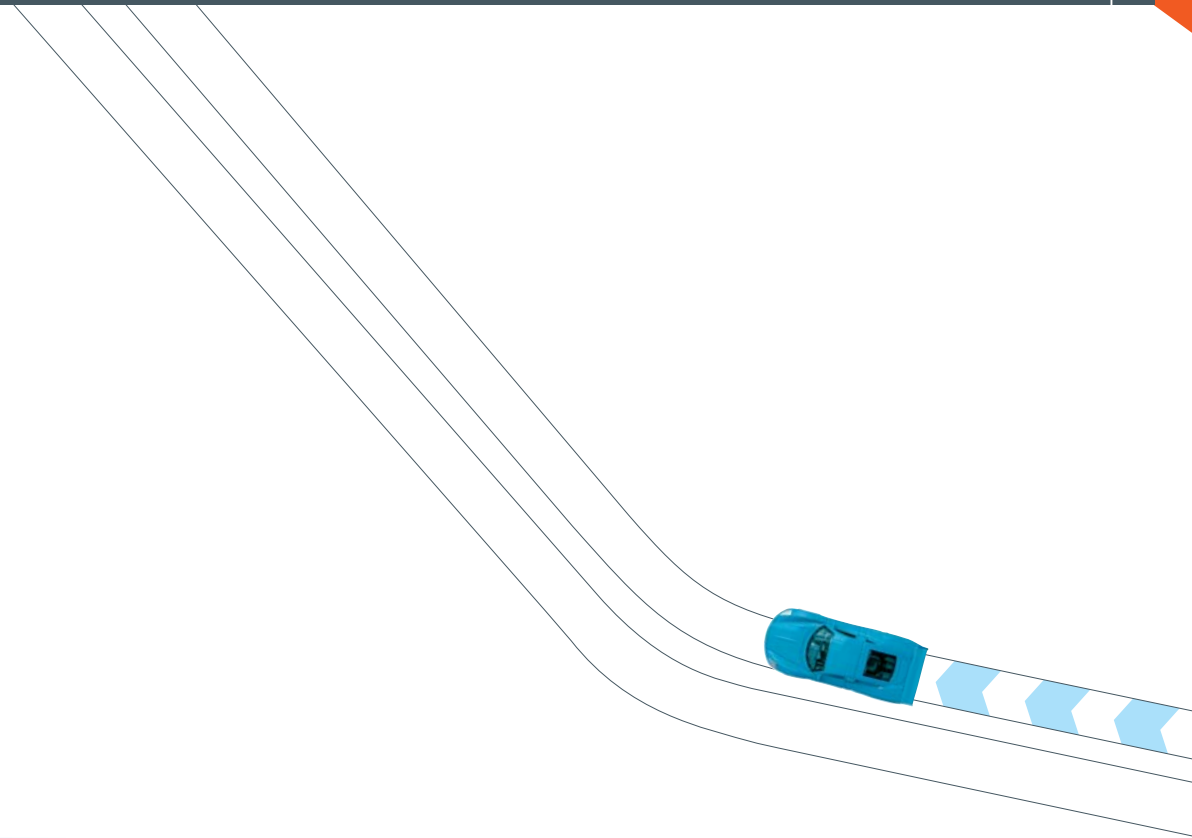
- The difference between trained and non-trained driving 11 months after the training is indicated with fuel consumption of approx. 8.75%.
- Liability damages could be reduced by 35%, and fully comprehensive insurance damage regressed by 22%.
- The drivers had a "new form of calmness".

In a further research project with Bremen Public Utilities (swb AG), this knowledge could be confirmed again about two years later. A direct comparison was carried out in addition between trained and non-trained drivers, as well as a data calibration adjustment between the periods before and after the training for the year 2005.

Transit 350 H in the year 2005



Average consumption



Editor:

Deutscher Verkehrssicherheitsrat e.V.
Beueler Bahnhofplatz 16
53225 Bonn

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Author:

Kay Schulte, Deutscher Verkehrssicherheitsrat e.V.

Specialist consultation:

Peter Glowalla, Bundesvereinigung der Fahrlehrerverbände e.V.
Jochen Lau, Deutscher Verkehrssicherheitsrat e.V.

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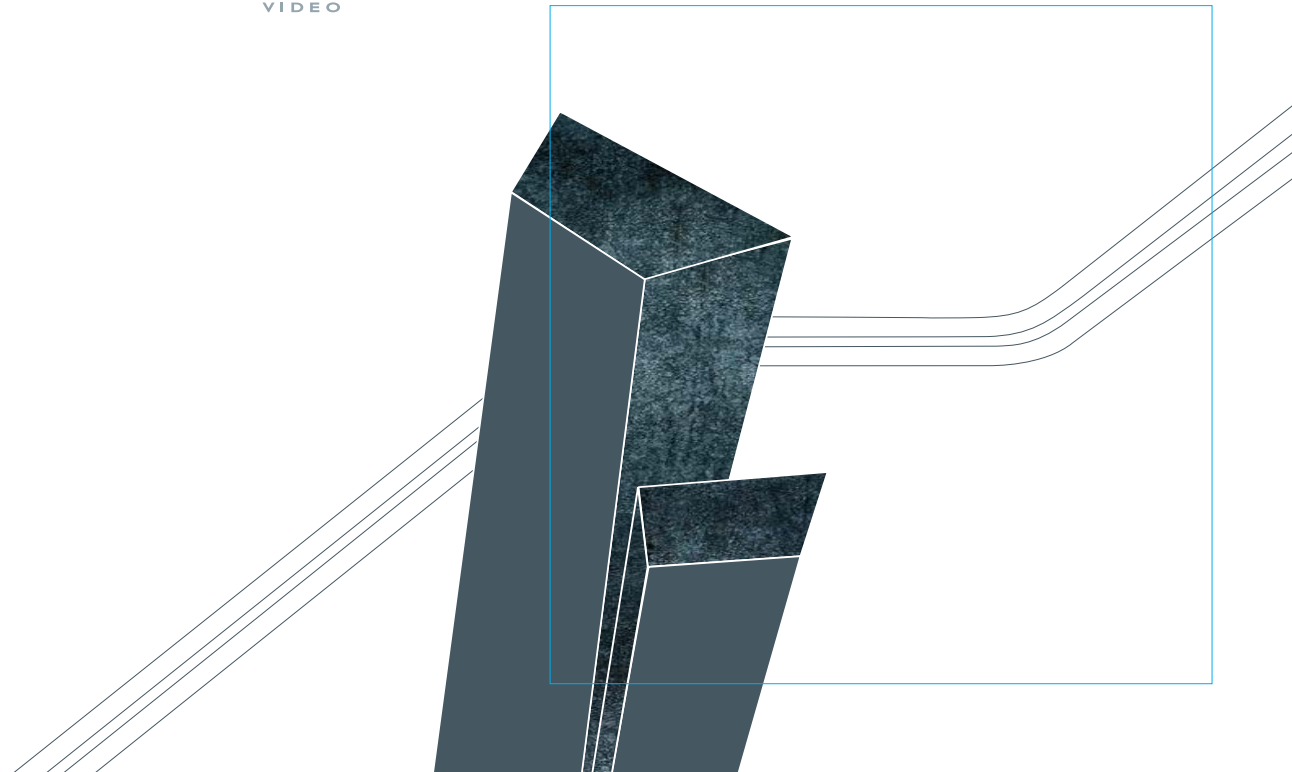
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On this DVD:

- Film "Parents Visit"
- Film "Mother - Daughter"
- Film "Disco Stag"
- Tutorial for driving instructors
- Tutorial for learners

System requirements:

- Pentium III 500 MHz,
Mac G3 or equivalent
- 256 MB RAM, DVD disk drive
- Windows 98/2000/XP
or from Mac OS X 10.1
- and/or TV with DVD player





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