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**Driving instructors' education in**  
**Europe: a long-term vision**

**The content of driving instructor training with regard to driving  
behaviour and road safety, based on the GDE matrix:**

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## TABLE OF CONTENTS

Introduction.....	3
1. The problem of unsafe driving.....	4
2. Competencies for safe driving .....	6
2.1. The relevance of the GDE-matrix for driving instructors.....	9
3. Curriculum for instructors' education.....	10
3.1. Content regarding overall aspects.....	11
3.2. Content of GDE level 4: .....	11
3.3. Content of GDE level 3: .....	12
3.4. Content of GDE level 2: .....	12
3.5. Content of GDE level 1: .....	13
4. Teaching skills and methods.....	15
4.1 A professional relationship .....	16
4.2 Presentation of teaching methods .....	18
4.3 Feedback .....	22
4.4 Simplification of learning content .....	23
4.5 Active learning.....	23
4.6 Coaching .....	23
4.7 Further important aspects of teaching.....	25

## Introduction

The education of professional driving instructors in Europe is an important traffic safety measure together with effective driver testing, efficient transportation systems, better vehicles and up-to-date traffic regulations. Competent driving instructors are a pre-requisite for competent driver training and skilled driver behaviour, which in turn will result in improved road safety, cleaner environment and better capacity on our roads. In this way, both individual and public mobility will be strengthened.

This is the first working paper of the EU MERIT project on future standards for driving instructors in Europe. The paper presents a long-term vision for instructor training and is designed to provide a basis for discussion in MERIT workshop 1 (January 21, 2005). Following workshop 1, a second (less ambitious) paper will be drafted with a view to proposing minimum requirements for driving instructors in the short-to-medium term. This second paper will be discussed in a further MERIT workshop on March 21, 2005.

The final recommendations of the MERIT project will be used by the European Commission to prepare new legislation at EU level for driving instructor standards.

This working paper is based on both practical experience in driving instruction and scientific research. It emphasises the importance of social interaction and human behaviour in driving and driver training, in addition to the technical aspects of driving itself. Whilst some concepts are presented from a scientific perspective, we do not expect driving instructors to be psychologists. The role of the instructor should remain practical in nature. Whereas he/she should have a basic understanding of the concepts described here – and an ability to apply it practically in their work, there is no need for them to possess a detailed understanding of the scientific background.

To reiterate, this is a consultation document on a long-term vision for driving instructors. To submit your views on this paper, please write to the project team at [EU\\_MERIT\\_Project@hotmail.com](mailto:EU_MERIT_Project@hotmail.com).

# The content of driving instructor training with regard to driving behaviour and road safety, based on the GDE matrix

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## 1. The problem of unsafe driving

The basic assumption for defining the content of driving instructors' education is, firstly, that instructors must know all the things that the learner drivers need to know and, secondly, they need to know them better in order to explain how and why these things are important. They must also possess pedagogical and didactical skills which provide many efficient tools to help the learner drivers incorporate the competencies they need into their attitudes, knowledge, skills and actual behaviour (see chapter 4).

Knowledge about what constitutes a safe and an unsafe driver is extensive. A vast amount of research is available, which shows that becoming a safe driver is a very complicated matter. In a recent literature review of young novice drivers and driver training<sup>1</sup>, the following aspects were found to be important correlates to unsafe driving:

- **Gender** (exposure, driving style...)
- **Geographical differences** (exposure, transport needs, licensing rates...)
- **Lifestyle** (car interest, drug abuse, problem behaviour...)
- **Social position** (education, occupation...)
- **Personality** (sensation seeking, testing limits, conscious risk taking)
- **Ability to reflect** (consequences of own behaviour)
- **Immigrants from certain parts of the world** (driver education, cultural differences)
- **Peer pressure** (outside and inside the car)
- **Alcohol** (party drinking, alcohol dependence)
- **Tiredness** (professional drivers, young drivers)
- **Time** (evenings and weekend nights)
- **Safety belts** (young men...)
- **Routine** (automatisation, mental workload, visual search...)
- **Integration in traffic** (co-operation, informal rules...)
- **Overconfidence** (risk assessment, youth socialization process, lack of feedback/calibration)
- **Excessive speeding** (single accidents, loss of control, injuries)

One of the things that we really are certain of is that life-related factors such as the age of young drivers are important predictors of why they are overrepresented in accidents. Here, we are addressing things that are typical for youngsters such as their lifestyle, peer groups, the youth socialisation process, etc. These all influence attitudes, motives and the decisions which drivers make about driving behaviour. For young drivers, these decisions often result in excessive speed, drink driving, not using seatbelts and other forms of dangerous behaviour. We also know that gender is important. Men and women have for example different types of exposure, and this affects their exposure to hazardous situations. We

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<sup>1</sup> Engström et al, 2002

know, for instance, that young women generally have a more careful driving style, which also reduces their risk. Women are safer and better at driving in traffic but not at parking the car.

There are also large variations depending on where geographically drivers live, such as in urban or rural areas. The environment, for example, influences the exposure type, type of peer groups, transport needs and the licensing rates. The reduced licensing rates among youngsters in Sweden is geographically very different in for example Stockholm, where less than 10% of 18 year olds have a licence, compared to less populated rural areas in northern Sweden where the corresponding figure is 60%.

It has also clearly been shown that social position in terms of educational level, profession, school grades, and different types of problem behaviour such as drug abuse, criminal activities etc. are-related to accident involvement in traffic.

Looking into personality traits, we know that most correlation with crash risk is rather weak – if they exist at all. There is, however, one exception and that is those drivers known as sensation seekers. They are deliberately on the lookout for new challenges and risks and they are eager to test the limits of their ability. These drivers are high risk drivers that are involved in more accidents than others. For many youngsters this trait serves only to increase the already typical youth socialisation process, where testing limits and taking risks are commonplace.

A driver's ability to (self-)reflect is also an interesting aspect. Studies have indicated a pattern of poorer than average self-reflection skills among young drivers who have been involved in accidents.

Cultural aspects have been found when looking at crash rates among immigrants from certain parts of the world. In Sweden, immigrants from the Middle East and North Africa have a 4 times higher crash risk than drivers born in Sweden. The reason for this is partly cultural and partly due to the lack of opportunities to learn about the Swedish traffic system.

Peer groups in general, peer passengers in the car, driving too fast, driving under the influence of alcohol, being tired behind the wheel or not using seat belts, have all been shown to be especially severe problems for young, novice drivers.

The flipside of the same coin, relating to skills, knowledge and insight about driving, is that drivers with little routine are more often involved in accidents than ones with much routine. This is relevant to all ages of drivers. Lack of routine is dangerous due to the time-consuming development of mental processes and automatisisation of driving tasks which are important for safe driving. This is a complex problem in many countries because the only way to gain routine is through driving. And the only time to do this is often during the first months with a licence which, paradoxically, is also the most dangerous period in the driving career.

In the real world, we do not meet all these accident-increasing aspects one at a time, but rather in different combinations. It is important to realise, for example, that the combination of being a novice driver, young, overconfident, driving with peer passengers under influence of alcohol during night hours can easily have catastrophic consequences.

Many of these aspects are related to individual and social aspects of life in general, such as gender, lifestyle and personality. Others are more directly related to driving skills, such as the level of routine, integration in traffic and excessive speeding. It is, however, clear that most of the aspects mentioned above interact in different ways.

For some time now, the dichotomy of age and experience has been used to describe the difference between life-related factors of using the car and direct driving-related factors. The concepts of age and experience have helped us in some ways to understand certain dimensions of young novice drivers' behaviour and crash involvement, but in order to reduce crash risk in practice we need another framework or structure because most aspects of age and experience interact.

The use of age and experience as concepts may become confusing since many of the life-related aspects such as gender and personality are relatively constant during life. The age-related aspect of gender is defined by several other, more directly age-related aspects, such as peer groups, youth socialisation process and family situation, but also by type of exposure in traffic. We know that young men and young women have different exposure patterns, which results in different types of experience and thus also in different patterns of driving style and driving skills.

Similar reasoning applies to geographical differences. Living in rural or urban environment in itself is not an age-related aspect, but becomes age-related under the influence of exposure and thereby by experience. Types of road environment, types of errands, traffic density and driving speed are examples of experience-related aspects that are different in different geographical environments.

Alcohol consumption and driving under the influence is yet another example where age and experience interact. Current knowledge in this area tells us that young novice drivers do not drive under the influence of alcohol more often than others. Nevertheless, youngsters have greater problems with drunk driving. Several studies have shown that the crash risk of young novice drunk drivers is higher than for other groups of drink-drivers. And even if alcohol consumption and a decision to drive under the influence is an age-related process, the road safety problem refers to a large extent to routine and experience in how to interact in traffic, to detect hazards and to handle them when they occur. Alcohol reinforces the general weaknesses that novice drivers have when they are sober.

## **2. Competencies for safe driving**

In the section above, a description of a dangerous driver and dangerous driving behaviour was given. Another challenging perspective is to look at the safe driver and safe driving behaviour. A safe driver may be described as someone who is not only skilled in vehicle control and manoeuvring, but who is also sensible and wise.

A hierarchical approach helps us to structure and to understand more clearly what competencies a safe driver needs. One of the important outcomes of the EU-project GADGET was a matrix for defining the goals of driver training. The GDE (Goals for Driver Education) matrix is based on the assumption that the driving task can be described as a hierarchy. The idea of the hierarchical approach is that abilities and preconditions on a higher level influence the demands, decisions and behaviour on a lower level. The hierarchy

used here is developed by Keskinen (1996) and shows many similarities with the Michon hierarchy. The most important difference is the goal-oriented perspective instead of the behaviour description perspective of Michon. What is also important is the addition of a fourth level relating to personal preconditions and ambitions in life in general, which have shown to be of great importance for driving and road safety. The following four levels are described by Keskinen and were later also applied in the EU-project GADGET (Hatakka et al. 2002):

4. Goals for life and skills for living
3. Goals and context of driving
2. Driving in traffic situations
1. Vehicle control

The fourth and highest level refers to personal motives and tendencies in a broader perspective. This level is based on knowledge that lifestyles, social background, gender, age and other individual preconditions have an influence on attitudes, driving behaviour and accident involvement.

On the third level, the focus is on the goals behind driving and the context in which driving is performed. The focus is on why, where, when and with whom the driving is carried out. More detailed examples include the choice between car or bus, day-time or night-time driving, rush-hours or not, decision to drive under the influence of alcohol, fatigue or stress etc., all in relation to the purpose of the trip.

The second level is about mastering driving in traffic situations, which are defined as more limited than the driving context above. A driver must be able to adapt his/her driving in accordance with the constant changes in traffic, for example in junctions, when overtaking or when encountering vulnerable road users. The ability to identify potential hazards in traffic is also on this level.

The bottom level emphasises the vehicle, its construction and how it is manoeuvred. Knowing how to start, change gears, etc. well enough to be able to use the car in traffic belongs to this level as well as more complex evasive manoeuvres, reducing skids on low friction and understanding the laws of physical forces. The functioning and benefits of injury preventive systems such as seat belts and airbags also belong here.

Driver training traditionally focuses on levels 1 and 2.

A safe driver is, however, not only skilled but also aware of risks and of his own abilities and characteristics as a person. In order to cover these different dimensions the hierarchy was expanded into a matrix, which - in addition to the four levels – includes the following three dimensions:

- Knowledge and skills
- Risk increasing factors
- Self-assessment

The content of the first column describes the knowledge and skills that a driver needs for driving under normal circumstances. On the lower hierarchical levels, this equates to how to manoeuvre the car, how to drive in traffic and what rules must be followed. On the

higher levels, the column relates to how trips should be planned and how personal characteristics may influence behaviour and safety.

In the second column about risk-increasing factors the focus is on awareness of aspects related to traffic and life in general that can be associated with higher risk. On the basic level, this may be worn-out tyres, poor brakes, lack of routine in performing basic manoeuvring, etc. Higher in the hierarchy the column refers to risky driving in darkness, on low friction, among vulnerable road users, excessive speeding, mental overload, etc. It also relates to dangerous motives and risk-increasing aspects of lifestyle and personality.

The third column is about how the driver assesses his/her own situation on the four levels. It relates to the calibration of one's skills on the basic levels<sup>2</sup> and awareness of one's personal characteristics and tendencies, as well as abilities in decision-making about trips and in life in general on the upper levels.

The cells in the matrix thus define a framework for the definition of detailed competencies needed to be a safe driver. The matrix can be used for defining educational goals and educational content in driver training. The suggestion from the designers of the matrix is that driver training strives to cover as much as possible of the whole matrix, and not only the bottom left cells that are traditionally focused on.

An important prerequisite for a driving instructor who should teach these matters is that he/she possesses the same competencies. Thus, the GDE matrix is suggested as a framework for defining the part of the instructors' education that applies to road safety and driver behaviour.

Many learner drivers in EU are not well educated on these things. Most countries are still focusing on traffic rules and managing the vehicle in different traffic situations, which is the historical basis for driver education all over the world. Some countries have gone much further, but there is no licensing system that provides all the necessary competencies to all candidates.

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<sup>2</sup> Good calibration is when the driver's self-perceived skills correspond to his/her actual skills. Young drivers often tend to overestimate their skills.

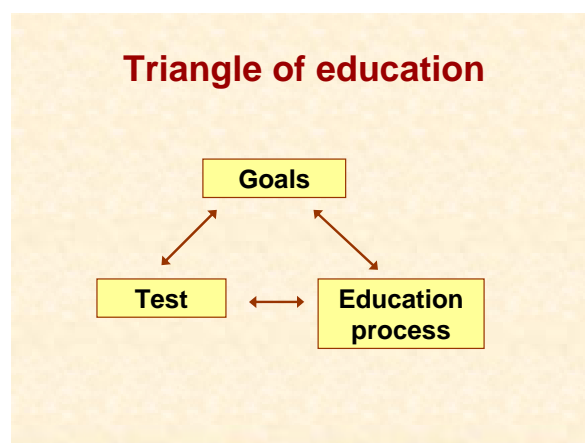


## GDE matrix

(Goals for Driver Education)  
(Hatakka, Keskinen, Glad, Gregersen, Hernetkoski, 2002)

	Knowledge and skill	Risk increasing aspects	Self assessment
<b>Goals for life and skills for living</b>	Lifestyle, age, group, culture, social position etc, vs driving behaviour	Sensation seeking Risk acceptance Group norms Peer pressure	Introspective competence Own preconditions Impulse control
<b>Goals and context of driving</b>	Modal choice Choice of time Role of motives Route planning	Alcohol, fatigue Low friction Rush hours Young passengers	Own motives influencing choices Self-critical thinking
<b>Driving in traffic</b>	Traffic rules Co-operation Hazard perception Automatization	Disobeying rules Close-following Low friction Vulnerable r.u.	Calibration of driving skills Own driving style
<b>Vehicle control</b>	Car functioning Protection systems Vehicle control Physical laws	No seatbelts Breakdown of vehicle systems Worn-out tyres	Calibration of car-control skills

In order to understand this situation, the triangular model of education can provide some help. Driver education is built on three interdependent elements which are continuously interacting. These are the *goals*, the *education process* and the *test*. Changes in one of these 'boxes' must be followed by changes in the other two. The goals of a national curriculum for driver training must be fulfilled in an education process that provides the correct knowledge and skill through the appropriate educational methods in order to reach the goals defined in the curriculum. One of the most important components of such a well-functioning system is highly educated teachers that possess the correct knowledge and teaching skills to convey all the necessary aspects that should be covered.



## 2.1. The relevance of the GDE-matrix for driving instructors

One assumption of the GDE matrix that is based on a vast amount of road safety research is that the whole matrix needs to be covered if instructors are to understand the complexity of the driving task and what is needed to become a safe driver. It is clear that the current driver education which instructors have to transmit cannot cover the whole matrix, but in order to gain as much as possible from the hierarchical and matrix idea, the teacher must at least be

aware of the importance of the hierarchical levels as well as the different aspects of the columns approach. By doing so, the latest research findings concerning young and novice drivers and what competencies they need can be integrated into the learning process. This is not sufficiently done today since the driving instructors in most countries do not have the competencies they need for this.

By using the matrix it is also possible to acquire an understanding of why certain types of educational strategies do not produce the expected results. To learn advanced driving techniques and how to handle the vehicle in critical situations (evasive manoeuvres, skid handling, emergency braking) may increase safety among drivers that, on the higher hierarchical levels, are motivated to increase their safety by using the new skills to increase their safety margins. It may, however, be counterproductive to safety for those drivers that have more dangerous preferences on the higher levels, such as sensation seeking, or belonging to certain peer groups where norms encourage dangerous driving, etc. For a driving instructor, this understanding is crucial in order to adapt the training strategy to each individual and also to enable the learner driver to understand these factors.

### **3. Curriculum for instructors' education**

Based on the above assumptions, a driving instructor's education should enable them to teach in all of the cells of the GDE-matrix. Much of this content is more advanced than is currently the case in most European countries. Some countries are closer to this approach, while others are far from it<sup>3</sup>. This framework should be seen as the basis for the discussion on what level minimum requirements for instructor training and testing should be set. This discussion will lead to a series of recommendations which will be formulated at a later stage.

Since the hierarchical approach is based on the idea that abilities and preconditions on a higher level influence the demands, decisions and behaviour on a lower level, the basic and most important part for driver education is GDE-level 4. Goals for life and skills for living is held as preconditions for the choices that are made on level 3 and how the car is driven on levels 2 and 1. This approach is different from the traditional one, where vehicle control has been regarded as the basis. When this traditional approach first emerged, road safety was not as high a priority as it is today. The priority at that time was mobility and the ability to use the vehicle as an effective tool for transportation of people and goods. Gradually, the safety aspect of driving has developed, but driver training and the demands on - and training of - driving instructors have not incorporated an overall safety approach. This is obvious when looking at the development of crash statistics. The overrepresentation of young novice drivers is as present today as it was many years ago.

In the following proposal, the approach has thus been to turn driving instructor training upside-down. As such, level 4 is used as a basis for the training of instructors with individual "goals for life and skills for living", followed by level 3 (trip-related "goals and context of driving"), level 2 with more situation-related "driving in traffic" and finally level 1 with - from a mobility point of view - the most basic "vehicle control". This strategy is based on a vast amount of safety research and has been chosen in order to prioritise the safety aspect of driving before the mobility aspect.

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<sup>3</sup> Please consult the results of the questionnaire survey to see which countries claim to be closer to this approach than others.

The following aims and content of driving instructor education is thus to be regarded as necessary in order to develop safe drivers:

### **3.1. Content regarding overall aspects**

The main task of all driving instructors is to develop responsible car drivers and to help these drivers to realise that their driver education is a life-long process. As discussed above, much of the driving task concerns personal decision-making based on situations and goals in life which are not directly-related to driving. Learner drivers must be trained in critical self-thinking, an ability to evaluate facts and decisions in every single situation and to realise the consequences of different choices. Aspects of ethics, norms and attitudes-related to driving should also be covered as well as the influence of driving and driving style on the global environment. Without the competence of an instructor, the driver will have severe difficulty in achieving the abilities and skills they need. The instructor must not only be able to provide the learner with knowledge and skill, an understanding of the importance of making the right choices and adopting a safe driving style. He must also develop the learner driver's willingness to follow these principles.

The driving instructor candidate should develop an understanding of the hierarchical approach to safe behaviour and should also be able to provide understanding to the learner driver about how abilities and preconditions on a higher level influence the demands, decisions and behaviour on a lower level.

### **3.2. Content of GDE level 4:**

The aim of “*Goals for life and skills for living*” is to provide understanding to the driving instructor candidate on how different personal and social preconditions influence one's role as a driver. The candidate should learn facts about and understand how driving behaviour and accident risk is correlated with factors such as age, gender, personality, lifestyle, socio-economy, education, and peer groups. By understanding these relations the candidate should develop the ability to teach learner drivers about the complex relations between individual, social and cultural aspects of life and driving behaviour.

#### *Individual aspects*

- age and gender
- personality
- general values and attitudes
- intelligence, education and learning style
- disabilities, special needs, vehicle adjustment
- diseases and abilities

#### *Social aspects*

- group norms and peer pressure
- youth socialisation process
- lifestyle
- socio-economic position

#### *Cultural aspects*

- immigration and different cultures in traffic

#### *Statistics*

- road safety/accident statistics, national and international for different sub groups of population and road users-related to GDE level 4-aspects

### **3.3. Content of GDE level 3:**

The aim of the part “*Goals and context of driving*” is to give the driving instructor candidate knowledge about safe and dangerous alternatives when drivers are making trip-related choices. The candidate should also understand the importance of planning the trip with regard to where, when, how, under which circumstances and why a trip should be carried out. This knowledge shall be used to encourage the learner driver to make trips as environmental friendly as possible and to avoid travelling under dangerous circumstances such as dense traffic, low friction, bad weather, driving under influence of alcohol or tiredness, etc.

#### *Transport and road safety system*

- structure of traffic and transport system, historical development
- organisation of road safety work and responsibilities, police, legislation responsibilities, NGOs etc.
- transport registers (accidents, licences, violations etc.)
- costs of traffic accidents, estimates of human costs, society cost, health cost etc.
- effects of traffic on health, mobility, economy, environment
- transportation and road safety research, basic principles and methods, understanding research reports and transport statistics

#### *Statistics*

- road safety/accident statistics, national and international for different travel modes in different general environments-related to driving choices on GDE level 3
- available sources for national and international transport statistics

#### *Decision making and behaviour in trip-related choices*

- health status and driving choices
- alcohol and drugs, tiredness
- peer pressure in the car, passengers, influence on accidents and driving style
- travel modes, available possibilities, public transport, selection principles
- traffic density, rush hours
- time of day, darkness, dusk and dawn
- seasonal and weather differences, snow and ice, fog, rain

### **3.4. Content of GDE level 2:**

The aim of the part “*Driving in traffic*” is to develop the candidate’s knowledge about car driving in different traffic situations. This knowledge should be based on knowledge about traffic rules, hazardous situations and accident patterns. It should also be seen from the perspective of cognitive psychology regarding how the ability to drive in traffic is developed with increased routine. This knowledge shall make the candidate more able to teach the ability to drive the car in a safe and environmental friendly way in cooperation with other road users, in different traffic situations and under different circumstances. This part also aims at development of the candidate’s ability to teach anticipation, hazard perception and driving with such safety margins that are needed to avoid becoming involved in critical situations. In addition, the candidate should develop skills in providing knowledge and understanding to learner drivers about why traffic rules exist and how they shall be followed.

### *Traffic rules*

- existing traffic rules and their applications
- increased internationalisation and travelling between countries
- road users who are not obeying traffic rules, driver's ability to adapt
- legal aspects of breaking the rules, police surveillance, methods and principles, penalties

### *Traffic psychology*

- cognitive psychology, mental workload, visual attention
- routine in traffic and automatism of driving behaviour
- overconfidence and calibration of subjective driving abilities in traffic
- behavioural adaptation, risk homeostasis<sup>4</sup> and zero-risk theory<sup>5</sup>

### *Driver behaviour*

- behaviour in different traffic situations (junctions, motorways, overtaking etc.)
- speed adjustment, general and in different road environments and situations
- cooperation with other road users and clearness about own intentions
- hazard perception
- dangerous situations, (animals, vulnerable road users, icy spots etc.)

### *Statistics*

- road safety/accident statistics, national and international for different accident types in different traffic situations-related to GDE level 2

## **3.5. Content of GDE level 1:**

The aim of the part “*Vehicle control*” is that the driving instructor candidate become skilled in teaching the learner driver how to manoeuvre the vehicle in a safe and environmentally-friendly way. The candidate shall also know how to help the learner driver to develop a realistic assessment of his ability to do this. This part should cover the necessary facts to teach learner drivers about how the vehicle, its different subsystems and the different protection systems in the car are functioning and how they can be used in the best possible way.

### *Vehicle functioning*

- functioning of the vehicle and its different subsystems
- functioning of safety systems (airbag, seat belts, brakes, tyres, chairs, anti skid systems, child restraints, neck support etc.)
- exhaust cleaning systems
- information about vehicle systems and their functioning in manuals, web-sites etc
- legislation concerning vehicles and their subsystems
- basic maintenance of vehicle and vehicle subsystems
- legislation concerning use of safety equipment
- principles of EuroNCAP, principles for crash worthiness of vehicles
- crash types, crash violence and injuries

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<sup>4</sup> Risk homeostasis is a phenomenon whereby each individual subconsciously accepts a certain amount of risk in his/her life. So if, for instance, a car is made safer by having ABS fitted, the driver automatically tends to drive faster and to follow closer to other vehicles, thereby reaching the 'same level of accepted risk' as he had before. This is a human key problem: Whenever technical progress to enhance safety is made, humans compensate this increased safety by adopting riskier (driving) behaviour.

<sup>5</sup> Zero risk theory states that drivers often believe their personal risk of having an accident to be about zero, because they have not yet had an accident (or have had only one, which is nothing compared to the time spent on the road without an accident). Consequently, they feel safe when they are driving and are not particularly interested in actively ensuring their safety.

### *Traffic psychology*

- cognitive psychology, mental workload, visual attention
- routine and automatization of basic vehicle control skills
- overconfidence and calibration of subjective car control skills

### *Vehicle control and-related behaviour*

- skills in vehicle control (starting, braking, steering, shifting gear,
- vehicle control on low friction
- vehicle control in high speed
- influence of the laws of nature on vehicle dynamics and movement
- sitting posture
- safety check of the vehicle
- benefits of using safety systems

In addition to the suggested content above, instructors' education needs to cover many other aspects such as finances, work organisation, legal matters and, above all, teaching methods. A sound knowledge of educational methods and an ability to vary them is crucial in order to select the correct approach for each area of the GDE-matrix to be covered. A section on educational methods is presented below.

## 4. Teaching skills and methods

Author: Gregor BARTL

### Introduction

People who know a lot are not necessarily good communicators of their knowledge. A good driver, for example, is not automatically a good driving instructor. Driving instruction is primarily a social profession. Instructors are dealing with people, not machines. The ability to:

- be an excellent communicator
- interact well with the learner driver
- behave and act appropriately

are therefore basic requirements for the instructor to be successful in his profession.

A major goal of driver training and testing is to guarantee road safety. Most other goals are secondary. One must ensure, therefore, that the process of driver training is oriented towards the goal of safe driving. The contents of driver training should thus be tested to make sure that they serve road safety goals. The personal interests of the driving instructor, such as for technological facts and figures, have no role to play in obligatory driver training.

The driving instructors' training must ensure that knowledge about road safety can be transmitted to the learner driver. The instructor should possess substantial risk-related competencies.

The professionalism of the driving instructor profession is increasingly important for two reasons:

1. Car driving is an increasingly high-valued commodity in today's society. Thorough training is thus desirable.
2. There needs to be a clear distinction between a professional driving instructor and a private or 'lay' instructor<sup>6</sup>.

Professionalism signifies a high-degree of specialisation:

The professionally trained driving instructor has a wide range of teaching methods at his/her disposal. These methods enable the instructor to reach specific objectives in the training. Only in this way can the instructor find the right balance of methods and themes with respect to the individual needs of each learner driver.

The professional relationship between the instructor and the pupil is of particular importance here. The instructor should be able to observe and note the thought processes and emotional signals emitted by the pupil – and he/she must also be able to recognise his own. A positive learning environment is essential for the learning process in a driving school. For this

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<sup>6</sup> A lay instructor is a non-professional accompanying driver, such as a parent of the learner driver.

reason, methods for establishing and maintaining the relationship between the instructor and pupil are presented first, followed by the specific teaching methods needed by the instructor.

Driving instructors of the future should be able to transfer knowledge and address attitudes (related to the highest level of the GDE-matrix), as explained in detail in previous sections. Consequently the teaching methods presented in this chapter have to be of high quality, too. Otherwise the demanding goals prescribed in the GDE-matrix cannot be reached.

The third column of the GDE-matrix, namely the development of self-assessment skills of learner drivers, must be trained in order to avoid dangerous self-overconfidence. This goal is supported by scientific evidence: People who can self-assess their own behaviour are in a kind of “self-aware state” and consequently they behave in a more socially acceptable manner. Self-awareness in the sense of giving feedback to oneself is extremely necessary, since road traffic is a field with an almost complete absence of feedback for the driver: You can, for example, speed, follow the preceding car too closely, drink and drive or not wear a seatbelt generally without consequences (see zero risk theory mentioned in the earlier chapter).

## **4.1 A professional relationship**

A good relationship between instructor and pupil is important on the following levels:

### **1. Agreement between the instructor and pupil on the GOALS of the course**

Both should agree on the objectives to be reached (to pass the test and to drive safely).

### **2. Agreement between the instructor and pupil on the CONTENT of the course**

Both parties consider the content of the course useful and effective for reaching the agreed goals (practically-relevant content).

### **3. Agreement between the instructor and pupil on the METHODS used**

Both agree that that the methods used for each component of the training are appropriate for reaching the agreed goals.

The model of 4-sided communication<sup>7</sup> illustrates the complexity of communication between people. It shows how we communicate on 4 channels or levels, although we are often only aware of one of them.

#### **1. Content level**

A statement is made on this conscious level (e.g. “The traffic light is green!”).

#### **2. Relationship level**

Without perhaps noticing it, one is also communicating something about the relationship between two parties (e.g. “you need my help”).

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<sup>7</sup> Schultz von Thun 2002

<sup>10</sup> The driving instructor as a traffic instructor” by Bruno Heilig 2003



### **3. Personal level**

Mostly unnoticed, we are also saying something about ourselves (e.g. “I am in a hurry!”).

### **4. Appeal level**

And finally, each statement has a requirement characteristic (e.g. Drive!“).

The particular complexity of communication is not only that each statement contains 3 – often sub-conscious – levels other than the standard content level. It also requires the listener to be aware of the 3 other levels. We should imagine that each listener needs 4 ears, one for each level. In this way, the listener has a:

#### **1. Content ear**

What is he telling me, and have I understood correctly? (the traffic light is green)

#### **2. Relationship ear**

What relationship does he think he has in relation to me? (does he think that I need his help?)

#### **3. Personal ear**

In making this statement, what is he telling me about himself? (Is he perhaps in a hurry?)

#### **4. Appeal ear**

What does he want from me? (Ah, I am supposed to drive off now)

Incorrect interpretations on the part of the listener are often the source of conflict. A classic example of this goes as follows: A man asks his wife “What is the green thing in the soup?” with which she replies: “If you don’t like it, you can always go to the pub!”. Clearly, the information and interpretation on the content and relationship levels are not in line. The man perhaps only wanted to know on a content level what vegetable was in the soup. The woman considered the question, on a relationship level, to be a criticism.

You can only get out of such conflict situations if you are aware of your communication levels. So, driving instructors need to be communications experts too. Instructors should ideally communicate as follows:

- His primary communication is on the content level.
- He analyses his own interpretations of the statements of the pupil in order to recognise the advent of conflict situations as early as possible, and he doesn’t react in a too hasty or exaggerated manner.
- In a conflict situation, he is the one who brings the communication back to the content level.

Deep-rooted conflicts cannot, of course, be solved through communication means alone. But such conflicts should not arise in every-day driving school situations. In contrast to lay instructors (e.g. mother or father), the pupil has no shared history with the instructor which could manifest itself in tense situations.

If a disproportionate level of emotion appears in the interaction between two persons, this is likely to be an example of “Transference“ or “Projection”. With *transference*, we can subconsciously transfer onto someone else feelings that are linked to experiences with other people. They often have nothing to do with the person with whom the feelings were evoked.

On closer analysis, for example, the driving instructor may remind the pupil of his foreign languages instructor who failed him. The instructor may also be reminded by his/her pupil of an unresolved conflict with someone else, for instance his daughter. The particularity of this dynamic is that the persons are unaware of these conflicts but that strong emotions and feelings are being felt. If these feelings are of a negative kind, this can lead to problems. Of course, positive transference also exists. This can be the case when we consider someone to be as nice as someone else. This relates to positive previous experiences in earlier encounters.

In professional relationships, one strives to be aware of this subconscious transference. In such situations, one should not show too much kindness or animosity but rather enter into a completely neutral situation based on the uniqueness of each encounter (driving lesson).

*Projections* can also be a source of conflict when communicating. This occurs when someone subconsciously attributes characteristics to someone else which he/she has but doesn't want to admit to. They prefer to project or attribute these characteristics onto someone else. For example, a strict teetotaler – who would really like to be a little more relaxed but who has set himself strict rules - may get irritated when observing others enjoying the things that he has deprived himself of. The exaggerated emotional stress attributed to the other person enjoying alcohol is due to an ongoing internal conflict concerning alcohol and freeness. The causes of these conflicts, which manifest themselves in the form of projections, are always self-imposed forbidden desires (“actually, deep down, I would really like to....”). In road traffic, a wide range of projections occur, above all when another road user takes liberties with the law; in short, when someone puts our moral behaviour to the test. For example, I keep to the speed limits and he is overtaking me. Projections can be a major source of stress for the driving instructor who spends much of the day on the road.

As with transference, there can also be positive projections where particular kindness is shown due to previously unrealised ideals or desires.

Such challenges appear tiresome on first glance. But it is a lot easier to behave according to the moment rather than according to the past (I can do this, I cannot do that). In the short-term, an amateurish approach where transference and projection reign seems to be the easiest. But in the long-term, the advantages of adopting a neutral, professional stance outweigh the short-term factors. You are spared of conflictual communication, you reach your objectives more quickly, customer satisfaction is greater and you are generally more content with yourself. This is important to prevent Burnout.

*Learning about establishing and maintaining professional relationships with drivers is most successfully achieved through personal experience, rather than reading about facts. It therefore makes sense for driving instructors to attend practically-oriented seminars (with a self-discovery character) during the basic training and in ongoing training too.*

## **4.2 Presentation of teaching methods**

Professional driving instructors distinguish themselves above all from lay instructors through their ability to use a range of different teaching methods for specific learning objectives. Teaching methods are trainable and can be assessed according to specific

criteria. The learning conditions can then be checked. Instructors who have taught themselves, on the other hand, are not successful in fostering learning on a systematic basis.

Research has identified 25 teaching methods<sup>10</sup> – divided into 5 groups. It is important to ensure that as many as possible of these methods are covered in the basic training for driving instructors. Driving instructors should be familiar with them, be able to implement them and know when to use them according to the pupil and to the task in hand. Each individual has a different learning style, for instance. Whereas some learner drivers can be told something verbally and then be able to apply it perfectly, other drivers need time to experience the action for themselves in practice before feeling comfortable with it.

### **The 25 teaching methods in 5 groups:**

#### **I. Showing**

##### **1. Demonstrate**

The instructor demonstrates driving behaviour, e.g. how to use the clutch and the gear shift, etc. It shall be demonstrated in an appropriate way so that the pupil can follow correctly. Demonstrating must be precise, in good coordination and in the right order. When demonstrating the correct behaviour certain details can be enhanced for emphasis, but demonstrating undesirable behaviour should be avoided.

##### **2. Illustrate**

Drawings, pictures, movies and models can help to illustrate things which cannot be observed easily in traffic (because they take place too fast, like the engine running, accidents, complex traffic situations, etc). Appropriate illustrations should aim to simplify complex situations and phenomena, get people interested in details and make difficult tasks and themes more understandable.

##### **3. Use model behaviour**

A driving instructor is always a model for the pupil. Hence he/she must behave as a safe, socially responsible road user in every aspect, from wearing a seat belt to defensive driving.

#### **II. Informing**

##### **4. Explain, review**

Explanations about theory and facts should be presented in a clear, understandable and simple structure. They should correspond to the individual state of knowledge of the pupil. The need for understanding such theory and facts must be made clear.

##### **5. Recount, narrate**

When narrating a story, both factual information and emotions are transferred in order to motivate the pupil to behave correct and to avoid incorrect behaviour. The individual learning goal of each story must be made clear. A story always has to have one or more highlights, tension and the final learning goal. But it is also possible to leave the end open to 'set an impulse' or initiate reflection. Use of stories does support the learning process.

### **III. Tasks**

#### 6. Instructions

Instructions are information about what to do and how to do a task in detail. Instructions must be well prepared, precise, understandable and short, especially during driving. Instructions must above all be given in a friendly or neutral way. The main characteristic of instructions is that they are strict and do not leave open space for individual thinking.

#### 7. Provide impulse/ stimulus

Impulses are given to make pupils start thinking or to encourage them to solve a problem or master a task properly themselves. Solutions should be found by the pupil, not by the instructor.

#### 8. Open choice of task

At an advanced stage, it makes sense to let the pupil decide what he should practice more intensively in order to optimize his skills.

#### 9. Questioning – developing

Certain learning contents can be developed together with the pupil by asking questions. This method activates the learner driver and he/she feels more responsible for the learning process. On the other hand, questions are useful to check the pupil's knowledge. It is important to recognise that this method cannot be applied to every learning situation.

#### 10. Learning games

Playing games encourage a positive learning environment which has a positive effect on the learning process. Both adults and children sometimes like to play. As a precondition, the goals of the learning game must be clear and the pupils must be willing to participate.

#### 11. Preparing learning

Pupils can be motivated to prepare themselves for the following lesson by, for example, observing other traffic users, collecting information, preparing a presentation or simply thinking about a question. This method can lead to higher personal involvement in the learning process and to a better link to every day life.

### **IV. Checking**

#### 12. Reinforce

When an action is correctly carried out, positive reinforcement should be given by the instructor. This encourages correct behaviour to be carried out more in the future. Each statement made by the instructor is interpreted by the learner driver; hence reinforcement must correspond to the situation.

#### 13. Criticise/ reprimand

Incorrect behaviour should be criticised in order to avoid it in the future it. But never criticise the person, only the wrong behaviour! The criticism should be followed by an explanation.

#### 14. Correct

In order to avoid a conflict or an accident the driving instructor has to correct quickly. An explanation should follow immediately once the incident is avoided.

#### 15. Appeal and caution

Appeals should be more specific than general and combined with an explanation, e.g. why he should use the indicator earlier.

#### 16. Self-assessment

The learner driver should be permanently encouraged to assess his own actions / behaviour. This encourages positive independent driving which is, of course, vital once the pupil has passed the test. This aspect relates especially to the third column of the GDE-matrix (self-assessment) and to the need to give the pupil the assessment tools to continue learning even when he/she has a driving licence.

### **V. Arrange and moderate school activities**

#### 17. Collect and structure ideas

Brainstorming before starting the lesson can activate pupils and help to structure the subsequent learning process. Pupils can be motivated to find solutions, collect ideas, opinions, pros and cons, etc.

#### 18. Probe and discover

Probe should be understood as ‘trial and error’, and discover in the sense of finding solutions for oneself. The instructor then has to summarize and / or to positively reinforce the correct approach. This method leads to higher learning motivation, to a higher “intrinsic” motivation and the correct behaviour is more likely to be applied later in traffic<sup>11</sup>.

#### 19. Practise and repeat

Consistent training ensures that knowledge and skills are stored in the brain and cannot be disturbed easily, for instance during stressful situations like the driving test. It is not effective to practice too intensively shortly before the test, because new learning content cannot be memorized in the brain when the person is in a stressed state. For practise and repetition, a relaxed mood is optimal.

#### 20. Small group exercises

In observation tasks, four eyes can see more than only two; hence small group exercises make sense in specific situations. When driving, however, only one person assumes the responsibility. (Whenever new knowledge is introduced, other teaching methods are favourable).

#### 21. Individual exercises

Every pupil has his own learning capacity; hence individual learning shall be part of every training. Individual exercises are also necessary to train independent decision-making which is a central element of driving in different traffic situations (= levels two and three of the GDE-matrix).

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<sup>11</sup> *Intrinsic* motivation means I do it because I really want to myself; *extrinsic* motivation means I better do it because others want me to.

## 22. Interactive role plays

Role plays only make sense if pupils are not too shy. Then typical traffic conflicts can be experienced and analysed. Simple interactive plays can be used to get to know one another in a group.

## 23. Lead a discussion

The group leader initiates a discussion and then stays more in the background. He must summarize, motivate and give positive or negative reinforcement. Leading group discussions is complex so the instructor must be properly trained in practically-oriented seminars.

## 24. Case studies and situation studies

Concrete examples can be presented and analysed. The central goal of such exercises is to transfer the outcome of the examples analysed to the knowledge and behaviour of the learner driver.

## 25. Moderation method

Moderation is a complex mix of methods described above. The main difference to group discussion is that the moderator does not give the learning- or discussion goal. The subject or goal is provided by the group or individual pupil. It is an excellent method for developing group processes or for addressing problems in groups. This complex teaching method must also be trained and learned by instructors in practical seminars.

## 4.3 Feedback

### **Feedback – a principle of life**

Feedback is not only a teaching method but a principle of traffic itself and even a principle of life in general. It can be defined as an ongoing comparison between *how something is and how it should be*. Hence, lack of feedback in traffic can be a problem. If a driver drives too fast without any negative consequences, this lack of external feedback signals to him that his behaviour was ok.

### **Driving environment gives poor feedback**

Systematic feedback from the traffic environment to the road user is normally very poor. The road environment is thus a “bad instructor”, in contrast to skiing, for example, where the consequences of excessive speed are felt immediately! This lack of external feedback needs to be replaced by the driver’s own self-assessment skills. Every available form of feedback should be used during driving lessons. Two main types of feedback can be distinguished:

#### **Classic feedback:**

The trainer praises the learner driver for exemplary behaviour and also for what could be improved.

#### **Advanced feedback:**

The instructor guides the learner driver by asking questions so that the learner driver is able to give feedback to himself. In this sense, open questions (why, who, what, when...) are better than closed up questions (either or, yes or no...)

### **Commentary driving:**

Commentary driving can be seen as a subgroup of feedback. The driver should explain his decision-making processes while driving. In addition to thoughts, emotions can also be evoked in order to make the situation more meaningful and life-like.

## **4.4 Simplification of learning content**

Driving is more a complex task than a difficult task. The driving instructor should be able to simplify this complexity with regard to:

- Traffic situations
- Vehicle manoeuvring skills
- Driver's fitness to drive at the moment.

For example, the colours of a traffic light can be used to simplify a complex situation.

A driver has always to evaluate the present traffic situation:

- It can be normal (green), e.g. if there is no bus at the stop in front of you and the traffic situation is clear.
- It can be critical (yellow), e.g. if there is a bus at the stop, hence the driver has to be prepared to react.
- It can be hazardous (red), e.g. if the bus starts indicating its intention to move off. Then the driver has to react immediately.

This threefold scheme is one example of how to present complex situations in a simplified manner. It can be used for feedback and discussion between the instructor and the learner driver. The feelings of the driver can also be expressed by using this scheme: normal concentration (green), tired, or in a bit of a hurry...(yellow), almost falling asleep, extremely agitated...(red).

## **4.5 Active learning**

Active learning comprises all teaching methods where the pupil plays an active role. The main goal is that the person feels more responsible for the learning process. The earlier experiences of the pupil, which do not necessarily have to be linked to driving, should be used in the learning process. One outstanding method which can be categorised under active learning is coaching (see below).

## **4.6 Coaching**

The art of coaching is establishing itself more and more in adult training and education. It is increasingly used in ongoing driver training, for example in on-road feedback drives and track exercises in the post-licence part of multiphase training. Coaching, until now, has not been a method of choice in basic driver training.

Coaching is an optimal method for further education, but also for addressing attitudes towards risk (level 4 of the GDE-matrix) in initial driver training.

A basic characteristic of coaching is that themes are addressed from a number of different perspectives. The objective is to develop a basis for drivers to make decisions. It is particularly important that the coach accepts that the drivers ultimately reach their own decisions. The feeling of free decision-making which is conveyed not only makes the driver aware that there is a decision to be made, but also that the consequences of that decision and any ensuing actions are entirely his/her responsibility.

The special thing about coaching is that it is designed to improve one's self-awareness. This conforms to the aims of the GDE (goals for driver education) matrix where correct self-evaluation on all 4 levels plays a central role in safe driving. This self-evaluation can be described as 'subjective self-awareness' – man himself is the subject of this attention. Research has shown that when objective self-awareness is created (in the form of a mirror which you look into at yourself), one's behaviour is steered towards the moral high ground.

In test situations with such mirrors, candidates tend to cheat less. Clearly, this form of self-observation allows one to observe one's behaviour and simultaneously creates an internal picture of how one should behave. If there is a difference between the two (internal tension), one tends to address this by adapting to the morally more acceptable model. For the driver, this could mean that he then decides to leave a little more safety margin or that he drives around bends more cautiously. This is where behaviour-relevant decisions are made for the benefit of safety.

The basic approach of coaching is questioning. This is the opposite method to that used in traditional learning where the instructor is used to showing. If correctly used, a coached discussion weighs up the 'for' and 'against' arguments for specific forms of behaviour. Finally, however, it is the learner driver who makes the ultimate decision.

If coaching is properly implemented, it is barely possible for a power struggle to ensue between the instructor and the pupil(s). The instructor must, however, be ready to use this form of relationship. He should not be led by the desire to show his pupils; he should be led by the curiosity and interest of the pupils.

Some driving instructors want to show off their driving ability. This actually works against road safety because it sets the wrong example. It would be better to show off as a coach, by showing real interest in the pupils and by focusing on each one as an individual.

The goal of a coach when asking questions is to get as deep as possible into the individual basis of behaviour. If, for example, the learner driver fails to see a pedestrian at a crossing it is necessary not only to comment on this but also to ask what could have been the reason for this oversight. Based on this discussion the learner driver should be able to develop strategies for the future in a similar situation. The coach helps to activate the own resources of the candidate to find solutions.



**The following principles of coaching should be borne in mind:**

<b>with Learning through showing...</b>	<b>with Coaching...</b>
...you can reach a concrete learning objective	...you can guide the learning process
...a fixed programme is carried out	...it encourages individual development
...learning material is used	...experiences are discussed and analysed
...it is mostly knowledge which is conveyed	...the right convictions are made
...there is only one truth	...there are several perspectives and outcomes
...the pupil should be shown	...the coach should be told or shown
...the instructor presents himself	...the coach meets the pupil with real interest and curiosity

**Important points for the coach:**

- The coach is responsible for asking the right questions, the pupil for the right answer
- The coach is shown something by the pupil, not the other way around
- The coach listens while the pupil explains
- The coach leads the discussion and works out solutions in conjunction with the pupil(s), but he accepts that the pupil decides which solution (or not) to take.

**Problem-oriented learning**

Problem-oriented learning is a great way to coach. The pupil, rather than the instructor, must discover the problem. This fosters active learning. The more the pupil is involved in the learning process, the more he feels responsible for making progress. The coach for example can ask the learner driver or learner driver to change the role: he is the instructor and the instructor is the learner driver. Now in the role of the instructor the pupil has to discover and explain important aspects of driving.

**“This could be me” method**

In traffic a variety of conflicts can raise. If we put ourselves into the shoes of the other traffic participant we get a better understanding and perhaps accept that also we make mistakes. People become more understanding and less aggressive as a result.

If the driver behaves in a highly risk-taking manner, the coach might ask how would you feel if you had caused an accident where you survive but in which you have killed your best friend. Again, it is important that only the driver finds his individual answer and that the coach appears value-free.

**4.7 Further important aspects of teaching**

**Lesson planning and evaluation**

The instructor has to set a goal for each lesson. Based on this goal a structure should be developed comprising the following parts:

- beginning of the lesson
- during the lesson
- at the end of the lesson.

The instructor should also be able to evaluate if the goal of the lesson has been achieved.

### **Information about learning methods**

The learner driver can expect from the instructor that he gives him advice on how to learn best and what to avoid when learning at home between the lessons and preparing for the test. Also the learning atmosphere and the learning environment play an essential role for the concentration to learn. The pupil should get recommendations so that he can be aware of his individual learning style.

### **Test Anxiety**

It is normal for learner drivers to be stressed by the driving test. The driving instructor should provide practical and individual information so that the learner driver can cope with this anxiety. It is important, however, to distinguish between positive and negative test anxiety. Nerves before the test can actually help the candidate be more concentrated during the test. A complete lack of nerves or anxiety can thus mean that the candidate does not perform to his or her best.

### **Rhetorical skills**

Professional rhetorical skills (the art of effective speaking) are particularly important for theory lessons. Rhetoric in the learning context should be seen as a service for the pupils so that they can learn in the most effective way. Rhetorical skills cannot be learned from a book but must be trained in seminars with video feedback. Three dimensions should be trained:

The Voice (would I like to listen to my speech?)

The way of speaking (would I like to learn from me?)

The body language (would I like to watch me?)

This chapter on teaching methods is designed to give a comprehensive overview for an optimal driving instructor. The subjects addressed are considered to be desirable modules in a training programme for driving instructors although not every detail has been highlighted.

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