CIECA Road User Education project (2015) – Conclusions …

- The (minimum) standards for drivers and driving teachers should be applied in national systems for driver education and assessment.

- National education systems should be reviewed against the pedagogical methods and the teaching logic of the example curriculum.

- The discussions and exchange on the identified questions and problems should be continued.
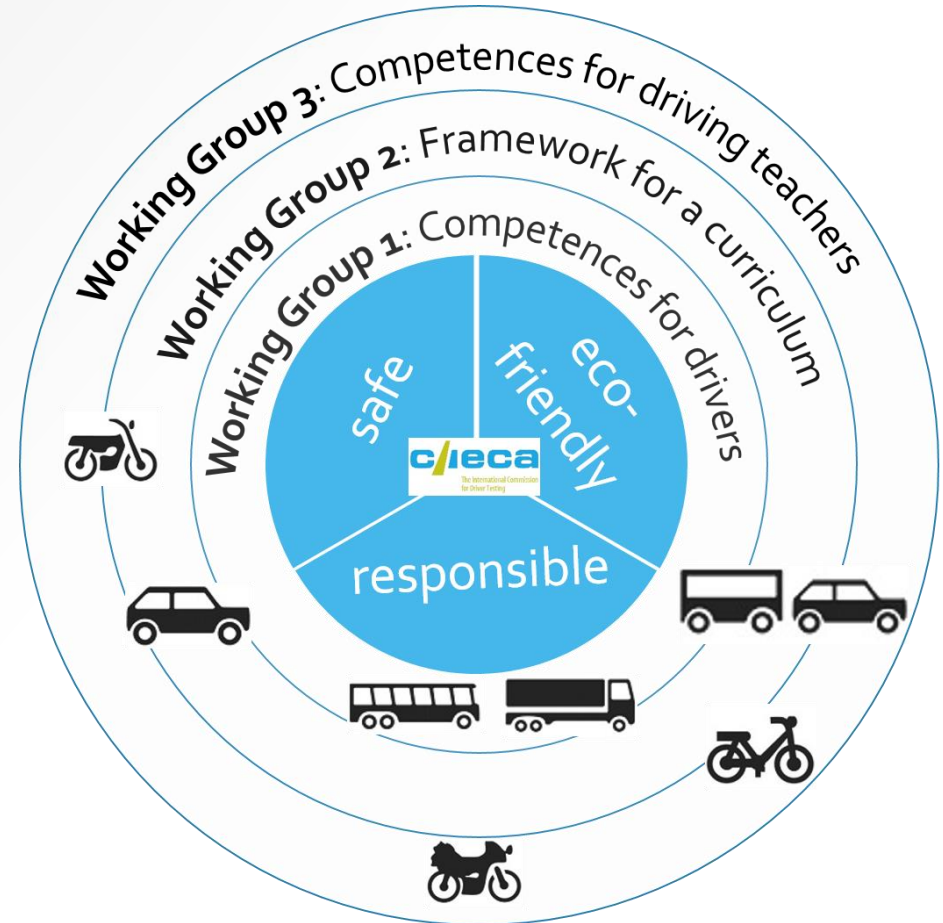
Common demand standards for novice driver preparation in Germany

Private driving school training

Training and Testing standards

State-mandated driving licence test

Training contents:
Which competences **are to be conveyed?**

Common demand standards:
e.g. **knowledge questions, traffic perception and hazard avoidance, driving tasks**

Test contents:
Which competences **are to be verified?**

Self-reflection:
Does the learner recognise his current knowledge and skills?

Assessment criteria:
e.g. factually correct responses, appropriate reactions

Performance assessment:
Which minimum legal requirements apply?

Evaluation of training progress:
Is the learner ready to take the driving test?

Decision criteria:
e.g. errors leading to immediate test failure

Test decision:
Knowledge and skills already sufficient for solo driving?

Competences for drivers (I):
The Practical Driving Test

Criteria for «*good driving*» were elaborated:

- Analyses of driving tasks and thoughts on standardisation of the practical driving test served as a starting point

- In addition, **prototypical situation demands and descriptions of driving behaviour** were elaborated as a basis for systematic behaviour observation.

The elaborated catalogue of driving standards comprises:

- **8 driving tasks (and 5 basic driving manoeuvres)**
  (e.g. bends, merging into traffic and lane changing, junctions and crossroads, etc.)

- **5 dimensions of competence**
  (traffic observation, vehicle positioning, speed adaptation, communication, vehicle control and environmentally aware driving)

- Situation- and competence-specific assessment criteria in the form of descriptions of desired behaviour and possible errors

The quality of the catalogue of driving standards was verified in a comprehensive empirical study covering approx. 10,000 driving tests.

**Catalogue of Driving Tasks
For An Optimised
Practical Driving Test**

Revised by the working group "Driving task description"
within the framework of BASt project FP 82 0529/2011
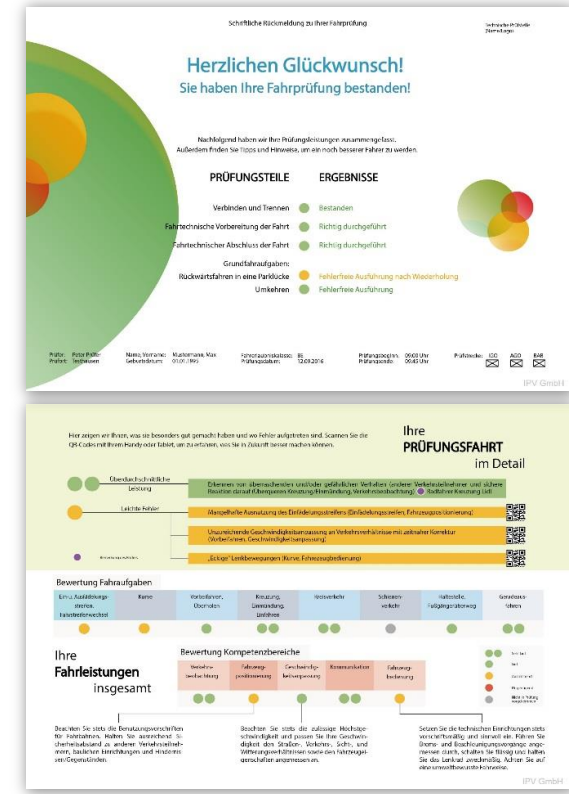"Revision of the optimised practical driving test"

(Status: 01.08.2014)

Introduction of an electronic test report for assessment and feedback on driving competence

(1) Legal basis and content stipulations

(2) Documentation and assessment with electronic test report

(3) Feedback on driving competence to every test candidate

Competence Based Responsibility

Continuous research and further development

Representative data from test realisation

Scientific evaluation

Revision of demand standards

Optimised driving test

Optimised content and methods
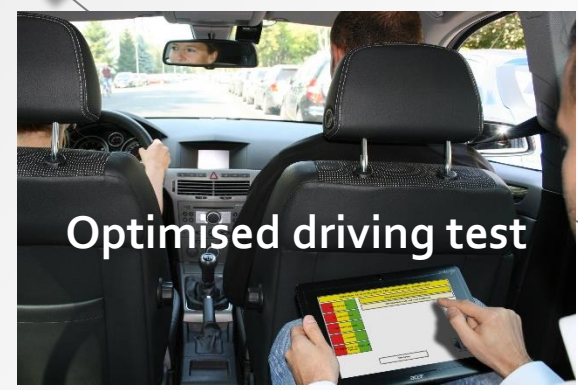
Competences for drivers (II):
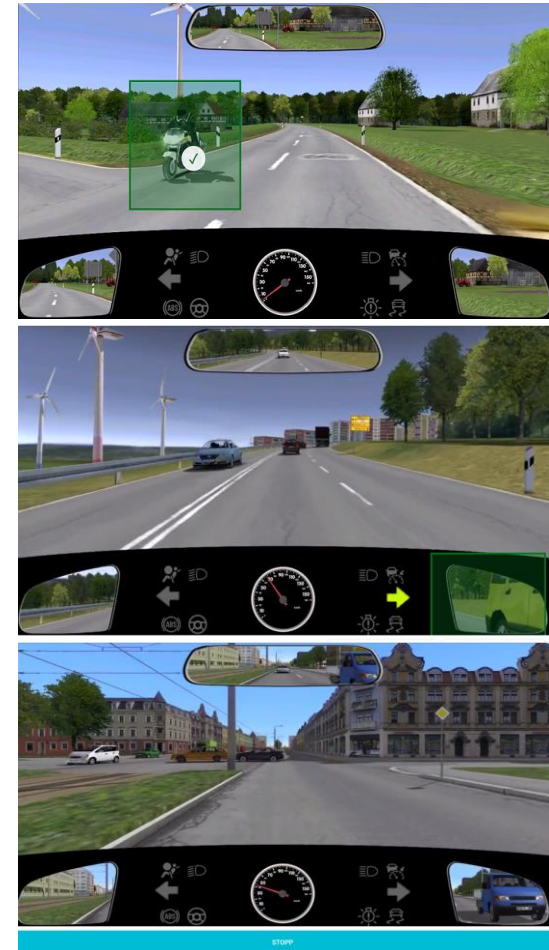## Test for Traffic Perception and Hazard Avoidance

Young novice drivers exhibit the highest accident risk of their entire driving career immediately after the beginning of solo driving.

→ This risk results, for example, from a lack of crucial skills relating to traffic perception and hazard avoidance.
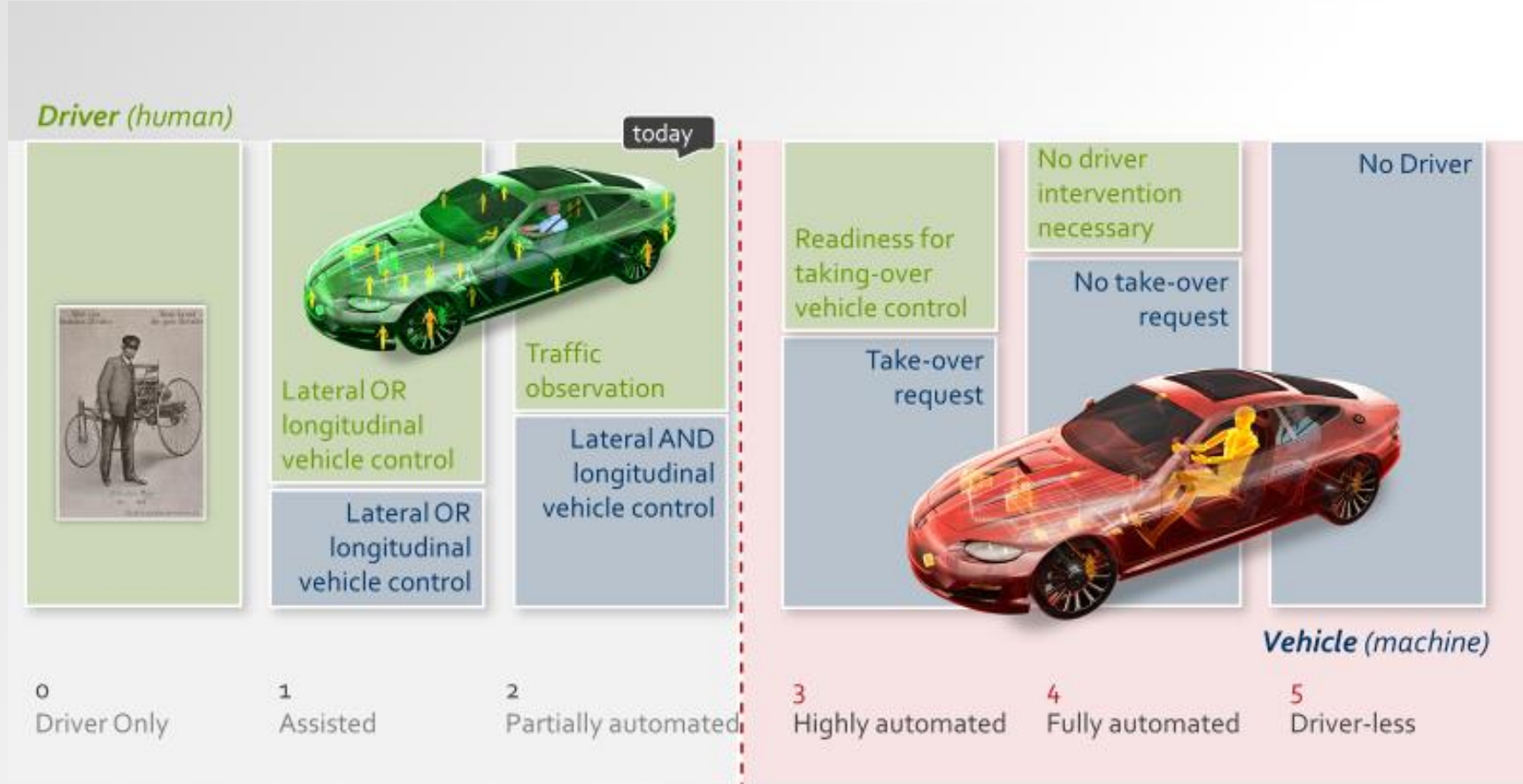
To advance concepts for teaching and testing competences of traffic perception and hazard avoidance, …

→ … relevant competences (demand components) were identified based on an analysis of published models of hazard cognition,

→ … an educational concept was developed for imparting these competences in the course of regular driver training, and

→ … a set of test items was devised based on a comprehensive analysis of task formats and task contents to measure relevant skills.

The set of test items to measure traffic perception and hazard avoidance is currently being trialed in a pilot study with learner drivers.

Competences for Drivers (III): Demands linked to automated and connected driving

Driver (human)

today

Lateral OR longitudinal vehicle control

Traffic observation

Lateral OR longitudinal vehicle control

Lateral AND longitudinal vehicle control

Readiness for taking-over vehicle control

Take-over request

No driver intervention necessary

No take-over request

No Driver

Vehicle (machine)

0	1	2	3	4	5
Driver Only	Assisted	Partially automated	Highly automated	Fully automated	Driver-less

Source: BASt, FSD

Competence Based Responsibility

Utilisation of full accident prevention potential

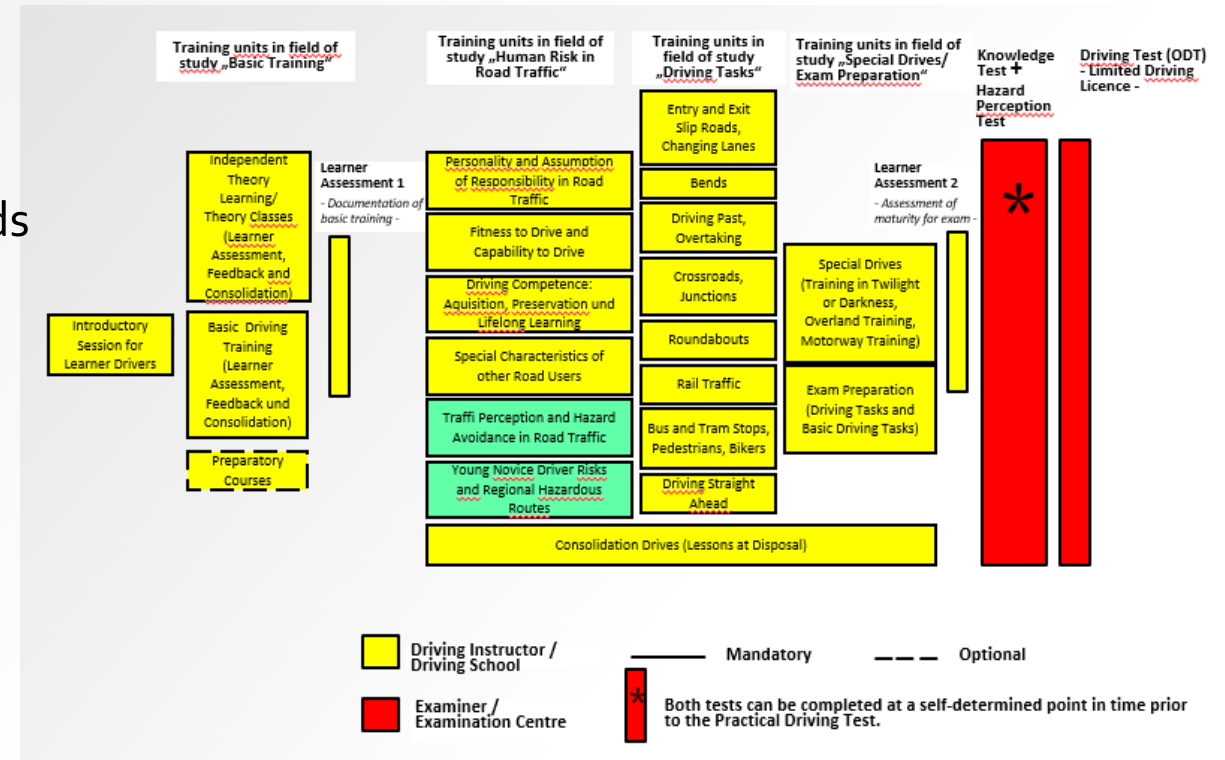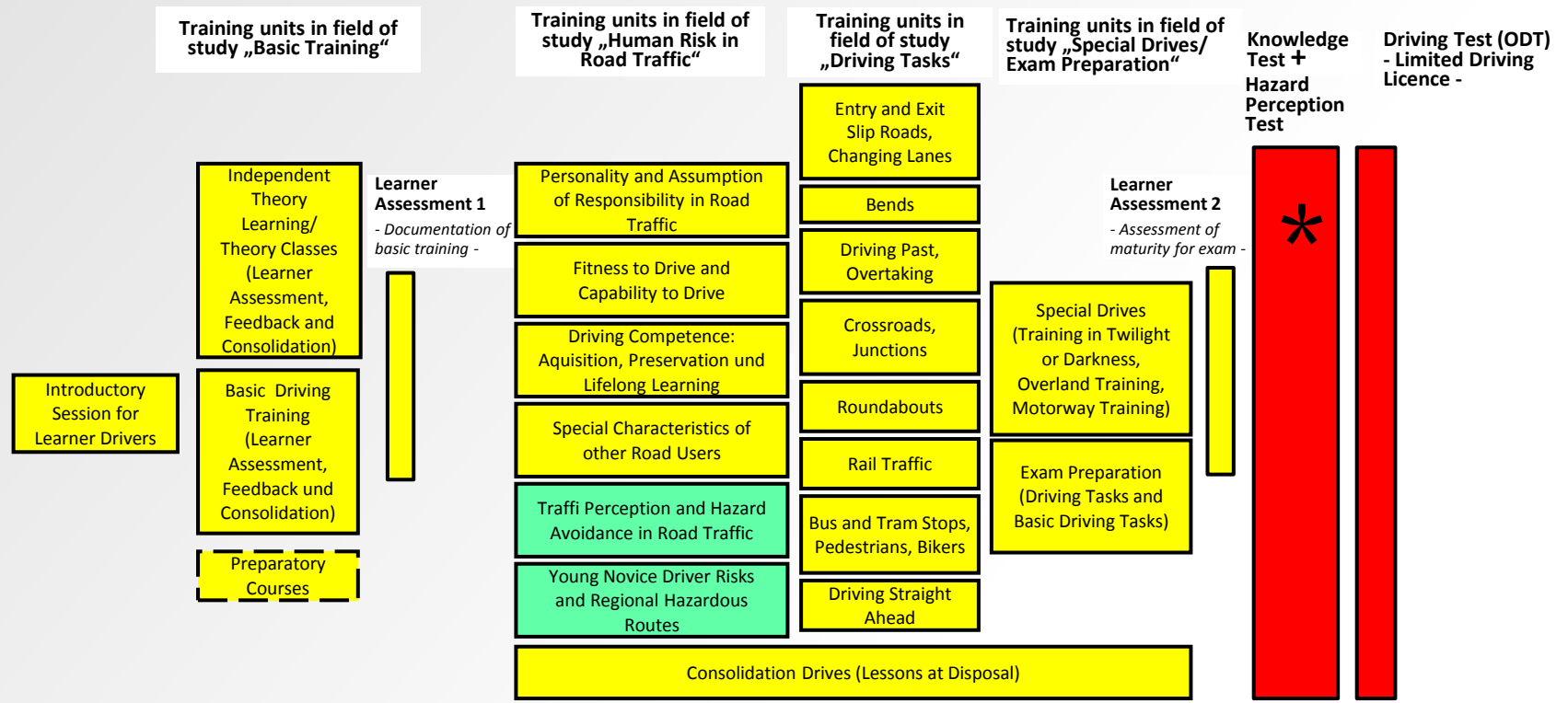|	
Accidents avoided →	Knowledge of the safety-enhancing potential of assistance systems increasing the acceptance of safety-relevant ADAS
Accidents not avoided →	Optimisation of current training and test concepts, e.g. HPT
New types of accident →	• Requires knowledge of function principles and limits of assistive systems (appropriate mental model of ADAS) • Increased awareness for potential negative effects of automatisation (e.g. monotony, disengagement, Overreliance on systems, Displacement of attention) • New concepts to preserve manual driving competence • Training of new action sequences (e.g. Take-over requests, Transition from automated to manual driving in critical situations)

Competence Based Responsibility

Mrs. Dreßler, IFK

Framework for a curriculum:
How to learn "good driving"

- Central recommendations in a future model for driving school training (Bredow & Sturzbecher, 2016):
  - Implementation of common demand standards for training and testing in an overarching curriculum
  - Broader anchoring of content relating to traffic perception and hazard avoidance
  - Inclusion of informal teaching/learning forms (e.g. independent theory learning)
  - Regular and systematic learning progress assessments

Training units in field of study „Basic Training"

Training units in field of study „Human Risk in Road Traffic"

Training units in field of study „Driving Tasks"

Training units in field of study „Special Drives/ Exam Preparation"

Knowledge Test + Hazard Perception Test

Driving Test (ODT) - Limited Driving Licence -

Independent Theory Learning/ Theory Classes (Learner Assessment, Feedback and Consolidation)

Learner Assessment 1 - Documentation of basic training -

Personality and Assumption of Responsibility in Road Traffic

Fitness to Drive and Capability to Drive

Driving Competence: Aquisition, Preservation und Lifelong Learning

Special Characteristics of other Road Users

Traffi Perception and Hazard Avoidance in Road Traffic

Young Novice Driver Risks and Regional Hazardous Routes

Entry and Exit Slip Roads, Changing Lanes

Bends

Driving Past, Overtaking

Crossroads, Junctions

Roundabouts

Rail Traffic

Bus and Tram Stops, Pedestrians, Bikers

Driving Straight Ahead

Learner Assessment 2 - Assessment of maturity for exam -

Special Drives (Training in Twilight or Darkness, Overland Training, Motorway Training)

Exam Preparation (Driving Tasks and Basic Driving Tasks)

*

Introductory Session for Learner Drivers

Basic Driving Training (Learner Assessment, Feedback und Consolidation)

Preparatory Courses

Consolidation Drives (Lessons at Disposal)

Driving Instructor / Driving School   Mandatory   Optional

Examiner / Examination Centre   * Both tests can be completed at a self-determined point in time prior to the Practical Driving Test.

Competence Based Responsibility

A Future Model for Driver Training

Statens vegvesen

NORD University

Training units in field of study „Basic Training"

Training units in field of study „Human Risk in Road Traffic"

Training units in field of study „Driving Tasks"

Training units in field of study „Special Drives/ Exam Preparation"

Knowledge Test + Hazard Perception Test

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Personality and Assumption of Responsibility in Road Traffic

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- Assessment of maturity for exam -

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Legend

🟨	Driving Instructor / Driving School
🟥	Examiner / Examination Centre

—— Mandatory   - - - Optional

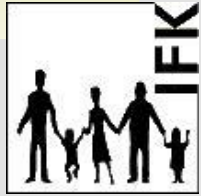* Both tests can be completed at a self-determined point in time prior to the Practical Driving Test.

How to learn "good driving" – Driving school training (2)

- Learning to drive is a complex process, calling for constant feedback on the individual's progressive attainment of learning objectives:

  - Learner assessments permit continuous comparison of the ACTUAL and TARGETED level of competence attained during training.

  - In this way, the learning process is supported (cognitive and motivational).

  - Serves driving teachers as a basis for targeted specification of the further course of training.

- With «eLBe», an electronic system has been developed to

  - … permit simple documentation of the training completed.

  - … enable systematic assessment of the learner's current status and identification of competences which are not yet fully developed.

Basic training

Driving tasks and basic manoeuvres

Special training drives

Test preparation & confirmation of readiness

How to learn "good driving" – Driving school training (3)

- The competence standards in eLBe are based on:
  - .... the legal foundations and curricular aids for driver training (e.g. "Curricular guidelines for practical training for car drivers" of the BVF)
  - ... the standards for "good driving" from the optimised practical driving test
- eLBe ensures complete and transparent training which is aligned systematically to actual learning needs.
  - Comparisons of competence assessments given by the driving teacher and the learner additionally promote the development of realistic self-appraisal.
  - Specific driving tasks provide a starting point for training relating to traffic perception and hazard avoidance («traffic sense»).
  - User expectations with regard to functionality and usability were taken into account during development (studies and trials).
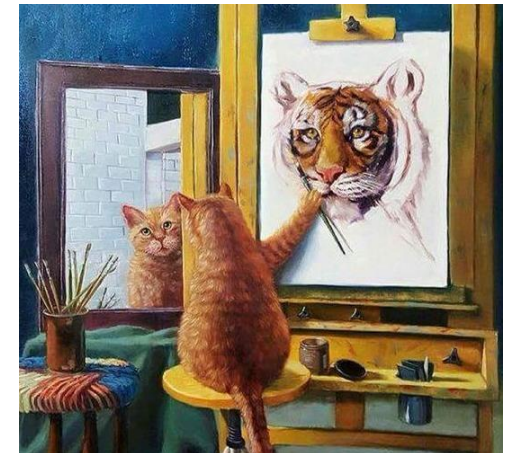
Example: Competence assessment in ELBE

Bends							
10.06.2017	Level of difficulty: Low					Assessment of learning task	
Assessment of dimensions of driving competence	**Traffic observation**	**Vehicle positioning**	**Speed adaptation**	**Communication**	**Environmentally aware driving**	... by the learner	...by the driving teacher
	⚠️	⚠️	⚠️			🙂	😐
... by the learner	🙂	🙂	🙂	🙂	🙂		
...by the driving teacher	☹️	😐	🙂	🙂	🙂		

Abschlussbeurteilung

{zurück zur Folie}

Competences for driving teachers:
How to convey "good driving"

- In the course of a pending reform of driving teacher training, …

  - the framework curriculum is to be updated and expanded to cover further technical, psychological and pedagogical aspects

  - the overall scope of the training is to be increased from 700 to 1000 hours

  - the proportion of pedagogical training is to be increased (from 33% to 50%)

- The technical and pedagogical-psychological knowledge required by the profession is described by way of 19 areas of competence and imperative training contents have been defined for each competence.

  - Competence standards are measurable and can thus serve as foundations for evidence-based control in driving teacher training.

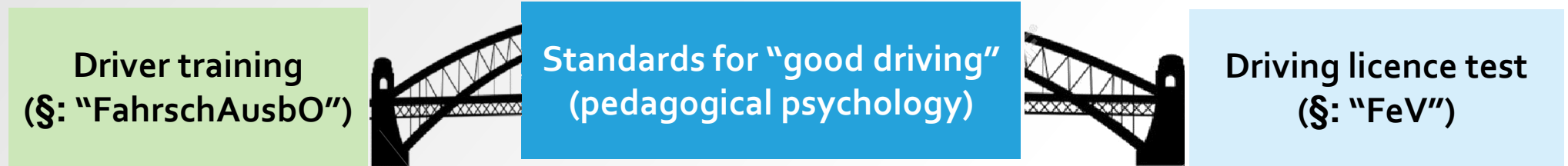**Reform proposal for driving teacher training**
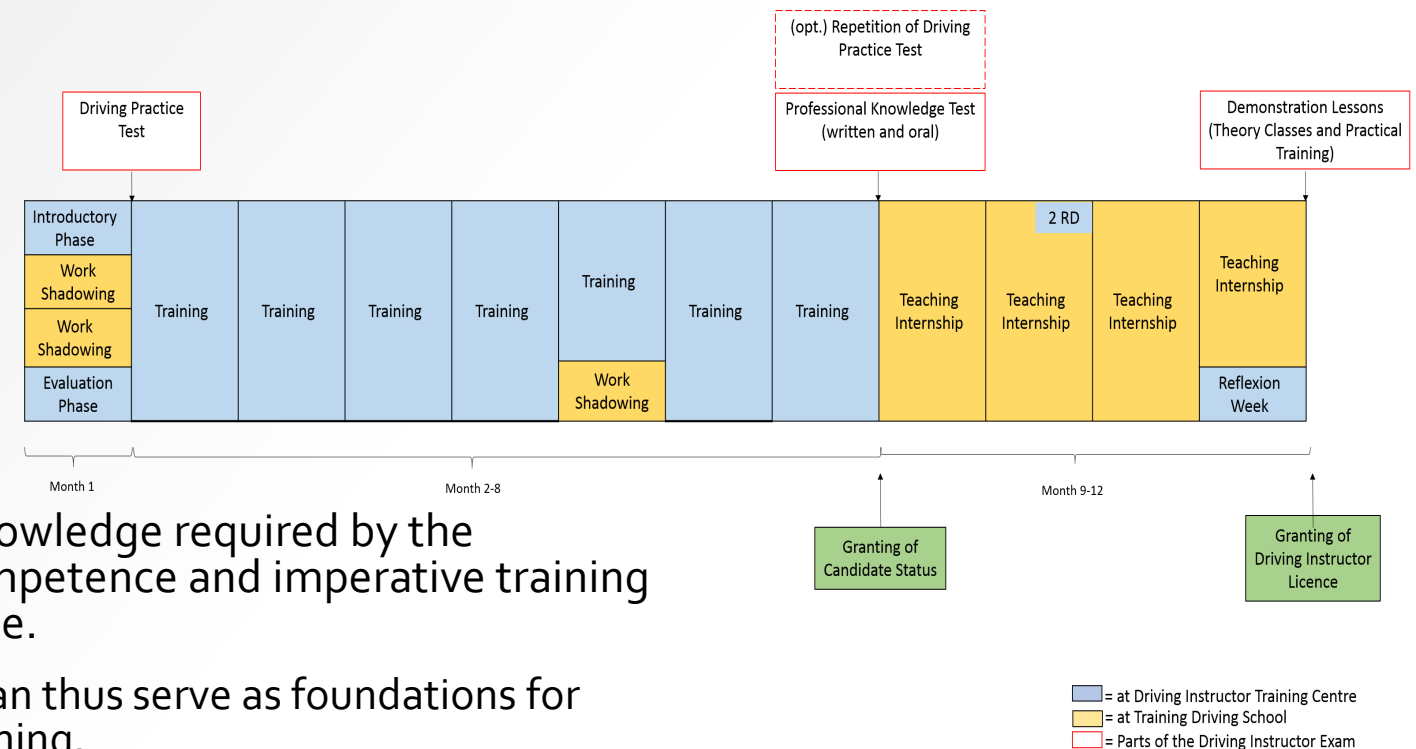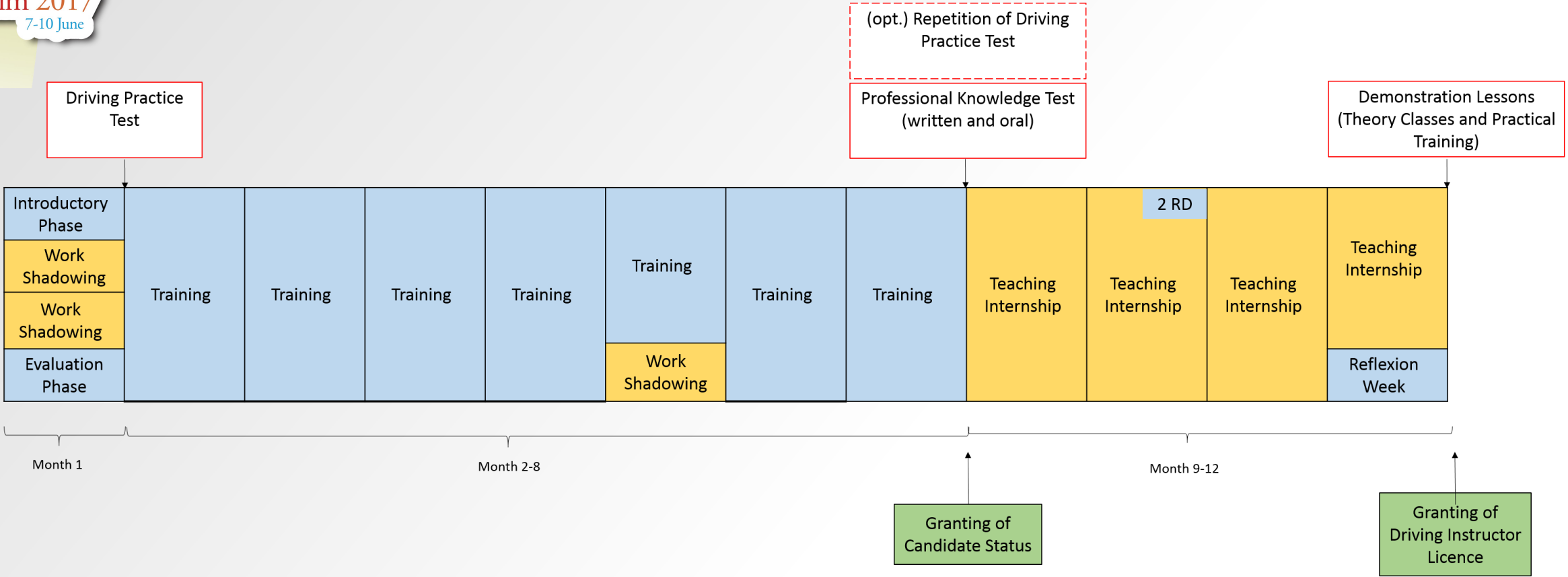
= at Driving Instructor Training Centre
= at Training Driving School
= Parts of the Driving Instructor Exam

Competence Based Responsibility

Demand standards
as a bridge between training and testing

Driver training (§: "FahrschAusbO")	Standards for "good driving" (pedagogical psychology)	Driving licence test (§: "FeV")

- The institutional and personal separation of driving school training and driving licence testing is a traditional feature of the German system and offers a number of benefits (e.g. independence and objectivity of the test).

  ▸ This proven separation should also be maintained in the future.

- Regarding goals and contents, however, close integration of the two systems is necessary!

- *Standards for good driving* ensure that common contents are addressed in both driver training and driving tests and form the basis for the qualification of driving teachers and test examiners.

Thank you

... for your attention!