

Novice driver preparation – an international comparison

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Novice driver preparation – an international comparison

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Abstract - Kurzfassung

Novice driver preparation – an international comparison

Novice drivers are prepared for their participation in motorised road traffic within the framework of defined systems of preparatory measures. Viewed internationally, these systems display significant differences in terms of design; having developed historically, they are characterised by country-specific economic, infrastructural, legal and cultural circumstances.

For a comparative analysis, recourse to principles of teaching and learning theory and to the approaches and research methodologies of comparative politics permit the elaboration of a conceptual framework for system description and analysis on the basis of functionally distinguished forms of teaching/learning and testing. The report presents the systems of novice driver preparation in 44 countries, with descriptions building upon surveys among experts from different relevant institutions (ministries of transport, driving instructor associations, test organisations), as well as literature and Internet research. Alongside European countries, with their traditionally strong focus on formal driving school training, consideration is given also to a selection of "graduated driver licensing" systems, as to be found above all in Australia/Oceania and North America. The latter are characterised by provisions to ensure extensive practical driving experience under low-risk conditions, by way of accompanied driving ("supervised practice") before the commencement of solo driving, and with protective regulations applicable to novice drivers, which serve to reduce risk exposure and to facilitate further driving competence development during the initial phase of driving without supervision.

The results provide a detailed insight into the country-specific implementations of novice driver preparation – consisting of formal driver training in driving schools, informal teaching/learning forms such as accompanied driving, and the driving licence tests to be passed – as well as legal framework conditions and quality assurance measures. Against the background of evaluation findings on road safety gains, the functionality of different system components and architectures is discussed.

Fahranfängervorbereitung im internationalen Vergleich

Fahranfänger werden im Rahmen spezifischer, international unterschiedlich ausgestalteter Maßnahmensysteme auf die motorisierte Verkehrsteilnahme vorbereitet. Diese Systeme sind historisch gewachsen und von länderspezifischen ökonomischen, infrastrukturellen, rechtlichen und kulturellen Gegebenheiten geprägt.

Für eine vergleichende Systembetrachtung wurde unter Rückgriff auf forschungsmethodische Ansätze der Vergleichenden Politikwissenschaft und lehr-lerntheoretische Grundlagen ein begrifflicher Rahmen erarbeitet, der eine Systembeschreibung und -analyse anhand funktional unterscheidbarer Lehr-Lernformen und Prüfungsformen ermöglicht. Im Bericht werden die Systeme der Fahranfängervorbereitung von 44 Ländern dargestellt. Die Beschreibungen basieren auf Befragungen von Experten verschiedener Institutionen (Verkehrsministerien, Fahrlehrerverbände, Prüforganisationen) sowie auf Literatur- und Internetrecherchen. Bei der Länderauswahl wurden – neben europäischen Ländern mit einer traditionell stark ausgeprägten formalen Fahrschulbildung – auch „Graduated Driver Licensing“-Systeme berücksichtigt, die vor allem in der englischsprachigen Welt in Übersee anzutreffen sind. Sie sind durch die Gewährleistung eines umfangreichen Fahrerfahrungsaufbaus unter niedrigen Risikobedingungen durch Begleitetes Fahren („supervised driving“) vor dem Beginn des „Selbstständigen Fahrens“ und protektive Sonderregelungen für Fahranfänger beim weiteren Fahrerfahrungsaufbau in der Anfangsphase des Selbstständigen Fahrens gekennzeichnet.

Die Ergebnisse ermöglichen einen detaillierten Einblick in die länderspezifische Ausgestaltung der Fahranfängervorbereitung mit den Bestandteilen der formalen Fahrausbildung in Fahrschulen, informeller Lehr-Lernformen wie das Begleitete Fahren-lernen, zu absolvierender Fahrerlaubnisprüfungen sowie rechtlicher Rahmenbedingungen und qualitätssichernder Maßnahmen. Vor dem Hintergrund von Evaluationsbefunden zur Sicherheitswirksamkeit wird die Funktionalität von Systembestandteilen und -architekturen diskutiert.

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1 Starting point and objective

In 1995, the Federal Highway Research Institute (Bundesanstalt für Straßenwesen, BASt) published the report "Driver training in Europe" (NEUMANN-OPITZ & HEINRICH, 1995), which presented the results of a questionnaire-based expert survey relating to the systems implemented for the training and testing of novice drivers and for quality control in the driving schools in 29 European countries.

Since the publication of this initial overview, the national measures to prepare novice drivers for their participation in motorised road traffic have been developed further on repeated occasions. Certain aspects of the content, for example the attention paid to youth-specific risk factors or environmentally aware driving behaviour, have gained in importance for novice driver preparation. The constant technical advances in vehicle engineering have similarly influenced the content focus. Computers and the Internet, as new learning media, have contributed to a broadening of the possibilities for independent learning alongside driving school instruction; in the majority of European countries, the computer is in the meantime the standard test medium for use in the theoretical driving test. In a number of countries, the concept of "accompanied driving" has become established practice and significantly extends the period of preparatory driving experience for novice drivers by involving lay accompanists. Mention must also be made of the two-phase systems of driver training which have been introduced in some countries, where the novice driver is required to attend an advanced training course after obtaining a driving licence and after commencing solo driving to improve his¹ attitudes to traffic safety. Changes in the systems for the training and testing of novice drivers have been triggered by a series of European research projects (e.g. GADGET, 1999; DAN, 2000; BASIC, 2003; SUPREME, 2007). Last but not least, implementation of the EU directives on driving licences has served to establish common minimum standards in novice driver preparation.

The efforts to improve novice driver preparation are supported by international exchanges between the involved experts. Consequently, ideas for improvement elaborated in the individual countries are brought to worldwide attention. This has led to a certain degree of convergence and assimilation

between the different models of novice driver preparation. In the so-called GDL systems ("Graduated Driver Licensing") which have become common in North America and Australia/Oceania since the 1990s, for example, an extended period of preparatory driving practice under the supervision of an experienced accompanist, and later solo driving experience subject to protective regulations and restrictions within the framework of graduated access to full driver rights, are the basic components of safety-oriented novice driver preparation. With the various schemes for "accompanied driving", an essential element of the GDL systems has also found its way into Europe. In the opposite direction, there is indication that the European debate on expansion of a formal, educationally oriented system of driver training (GDE matrix², second phase of driver training) has also influenced the discussions on the further development of novice driver preparation overseas.

The described developments have resulted in a considerable diversity of conditions under which novice drivers are prepared for their participation in motorised road traffic around the world. Analyses of the different national systems and the sharing of experience regarding their contributions to increased driving safety can also provide important stimulus for development of the German system, as shown by the examples of the "driver improvement" concept taken over in the 1960s and 70s, or the approach of "accompanied driving" from the past decade (WILLMES-LENZ, 2002; LEUTNER, BRÜNKEN & WILLMES-LENZ, 2009). In this respect, the present research report is able to make a further contribution with its comparative description of the national systems of novice driver preparation.

The report is based on literature and Internet research, as well as surveys conducted among experts on various aspects and measures of novice driver preparation in European and overseas countries. The results obtained are to be differentiated and viewed comparatively, and thereby assigned to the nodes of a conceptual framework founded in teaching and learning theory, which will permit description of the systems according to fundamentally distinct forms of teaching/learning and testing, and visualisation of the differences and common features with regard to the design of individual system components. Given the diversity of the research and survey results contained in the present report, they are to be subjected to overarching analysis to answer the following central questions:

¹ Wherever gender-specific nouns or pronouns are used, this serves solely to maximise general legibility and is in all cases to be understood to refer to persons of both genders.

² Goals of Driver Education

- Can particular “system types” be distinguished on the basis of the forms of teaching/learning and testing in use in the different countries and by way of their specific arrangement within the process of novice driver preparation?
- Are the different arrangements of these forms of teaching/learning and testing founded on teaching and learning theory principles, especially with regard to the function and benefit of the particular arrangement for the acquisition of driving and traffic competence?
- Which common lines of development and convergence trends can be identified in the different systems of novice driver preparation?

These questions are to be taken up once more and discussed conclusively after a detailed presentation of the differences and common features of the various systems of novice driver preparation. All discussions and explanations in the present report refer to the driving of motor vehicles corresponding to licence category B in accordance with the Third EU Directive on Driving Licences³.

2 Methodical approach

2.1 System analyses as a subject for comparative politics

The present study compares different national systems of novice driver preparation which have developed historically and are thus characterised by country-specific legal, social, cultural, economic and (traffic-related) infrastructural circumstances. Such system comparisons are a subject of particular research interest for political science; the term “comparative politics” was coined for this field of research in the English-speaking world in the 1950s. The central aim of this research is to explore questions relating to the functioning and interaction of political systems⁴. In Germany, corresponding questions have been discussed under the headings “Vergleichende Politikwissenschaft” (“comparative politics”) and “Vergleichende

Regierungslehre” (“comparative government”)⁵ since the end of the 1960s (STYKOW, 2007). These sub-disciplines of the social sciences have elaborated theoretical foundations and starting points for a research methodology⁶ intended to enhance the knowledge gains from international system comparisons.

Essential theoretical references for comparative politics can be derived from “systems theory”, an interdisciplinary research paradigm which has gained currency not only in the social sciences, but also in most fields of the natural sciences and humanities since the mid-20th century. A “system”, irrespective of whether economic, biological, psychological or political in nature, can generally be characterised in that it comprises a set of correlated elements which together represent a functional context distinct from their environment, and in this context serve particular purposes or functions (STYKOW, 2007). The system approach can thus also be used to describe and explain social and political structures in their complexity and working interrelationships. In this sense, the present study compares the different systems of novice driver preparation which licence applicants undergo on the way to actually obtaining a driving licence and the entitlement to independent participation in motorised road traffic. The process of learning to drive within these systems, the support given to driving competence acquisition through the design and interoperability of the individual system elements, and the interactions between formal and in part legally stipulated system elements on the one hand, and more informal system elements on the other hand, are here placed in the foreground of interest.

The occasions for comparative studies of social and political systems are numerous, and their objectives are correspondingly diverse. STYKOW (2007) names four typical overarching objectives for political system comparisons: (1) Empirical description (i.e. acquisition of the similarities and particularities of systems), (2) classification, cate-

³ DIRECTIVE 2006/126/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 December 2006 on driving licences (recast)

⁴ The relevant research is by no means focused exclusively on formalised political structures and institutions; it addresses also other, non-formalised areas of society and informal social structures (cf. KAMRAVA, 2008).

⁵ STYKOW (2007) points out that the terms “comparative politics” and “comparative government”, although frequently used as synonyms, actually possess a different scope. Comparative government represents a subdivision of comparative politics, concerning itself with systems of government in the narrower sense and their constitutional basis, whereas system research within the framework of comparative politics also investigates social structures which are not formally institutionalised.

⁶ A discussion seeking to distinguish “comparative methods” in political science from experimental research design and statistical methods can be found in LIJPHART (1971), alongside overviews of the research methods in comparative politics in JAHN (2006) and PICKEL, PICKEL, LAUTH and JAHN (2009).

gorisation and type construction (i.e. organisation of the diversity described by the empirical comparison according to certain criteria, as a basis for the definition of abstract, but at the same time meaningful categories), (3) theory construction (i.e. use of the comparison to test hypotheses regarding correlations between events and the influence of institutions, etc. on their explanatory power) and (4) prediction (i.e. forecasting of future developments and events, or at least the elaboration of development scenarios with estimated probabilities of occurrence). Where a study is concerned primarily with the first two of the aforementioned objectives, it can be assigned to the field of descriptive research; explanatory studies, by contrast, place greater emphasis on the construction of theories and predictions. According to LAUTH and WINKLER (2010), descriptive studies serve various purposes in respect of both the system elements and the system architecture, namely:

- to obtain information on certain empirical phenomena (especially in other countries),
- to organise empirical phenomena and, in doing so, to develop classifications and typologies,
- to provide pointers to unknown or particular aspects,
- to recognise differences, common features and functional equivalents,
- to measure individual cases against given scales (e.g. real type, ideal type), in order to identify deficits, and
- with reference to specific problems, to trace cases in which a solution has been found.

The present, descriptively designed study comprises a comparison of different systems of novice driver preparation; the focal task is empirical description, along with categorisation and type construction with regard to the system elements and system architectures. On this basis, it is then intended to address also aspects of effectiveness and road safety improvement embodied in the individual systems and their elements by way of the initially formulated central questions, taking into account relevant research findings relating to driving competence acquisition. This will reveal the possibilities for optimisation. At the same time, the basis for further theory construction and scientifically founded control mechanisms for the system of traffic policy will be expanded.

Comparative system studies require furthermore theoretical delimitation and specification of the subject of investigations. It must here also be ensured that the theoretical notions and concepts applied for comparison remain valid in different

contexts (e.g. different countries), i.e. that they possess a similar meaning in all the relevant contexts. The difficulties encountered in the translation of theoretical concepts and methodical instruments within the framework of international comparative studies, and the resulting limitations to be placed on knowledge gains, are known as the “travelling problem” – in allusion to the differing understandings of concepts in different regions. According to LAUTH et al. (2010, p. 44), this problem implies, “... on the conceptional level, the question as to the extent to which concepts and typologies originating within a particular cultural context are equally suitable for studies of other regions.” This translation problem becomes even more acute if the comparison is also to consider informal institutions (ibid.).

The adaptation of theoretical concepts to different contexts can be achieved either by way of extension (i.e. expansion of the theoretical constructs such that they become applicable for as many cases as possible) or by way of intension (i.e. limitation or reduction of the scope of attributes with which the constructs are to be identified) (JAHN, 2011). Where the abstraction level of the constructs or concepts used is raised to overcome context-specific limitations or to extend their range of applicability, there is a risk of so-called “conceptual stretching”, i.e. the sharpness and descriptive power of the study concepts are reduced (LAUTH et al., 2010; SARTORI, 1970). According to JAHN (2006), the development possibilities for the concepts used in comparative system research are located on a continuum between the poles of “specific validity” (i.e. a concept matches only one system) and “overstretching” (see above): It is thus necessary to seek the point of equilibrium at which the concepts are specific enough to permit unambiguous empirical determination of the phenomena of interest, but at the same time general enough to recognise these phenomena in as many of the investigated systems as possible. For the present study, in other words for a comparative presentation of systems of novice driver preparation, the initial theoretical tasks are therefore fundamental localisation of the overall subject of “novice driver preparation” from the perspective of learning theory, and subsequently its conceptional description, in accordance with the above requirements pertaining to the relevant contextual aspects and its time frame (see Chapter 2.2).

The validity of comparative system studies is moreover dependent on the case selection. A case is here understood to be a spatially and temporally specific unit of analysis, which in the classic context of comparative politics would refer to a (politi-

cal) system in a single national state. If it is not feasible to analyse the entire statistical population of all existing systems, then it is necessary to define a selection of cases, i.e. a sample. A basic distinction is made in this respect between a random sample and a conscious selection. The latter can also be termed a “positive selection” if cases are picked under particular aspects. It must be kept in mind that the process of case selection, and here in particular the numbers and types of cases analysed, will influence the later results of a study and may in the end lead to distortion of the validity of those results (“selection bias”) (JAHN, 2011). The cases or units of analysis in the present project are systems of novice driver preparation in different sovereign states or corresponding federated units (federal states, provinces). The case selection is thus an instance of conscious, positive selection; the aspects according to which the cases were selected are explained in Chapter 2.4.

2.2 Foundations in learning theory

2.2.1 Theoretical classification

The national systems of novice driver preparation are based on different scientific concepts and notions, and in some cases also different theoretical approaches. To be able to present these systems in an international comparison, therefore, it is first necessary to elaborate an overarching conceptual framework. The elaboration of such a framework for the present project concentrated on the learning theory perspective. To this end, concepts already customary in international practice in the fields of driver training and driving licence testing were taken over, as far as possible.

The following chapter first presents considerations regarding a definition of the concept of “novice driver preparation”. This at the same time serves to define the content of the subject “novice driver preparation” more precisely and to specify its temporal extent.

2.2.2 Novice driver preparation – Possibilities for concept definition

If the concept of “novice driver preparation” is interpreted in its literal sense, then it covers everything which prepares the future novice driver for participation in motorised road traffic and contributes to the acquisition of driving and traffic competence. This would place the concept in a much broader context than that of mere driver licensing and the associated requirements such as comple-

tion of driver training and passing of a driving test, because the foundations for traffic competence are already laid during childhood. Through their experience of traffic as a pedestrian and cyclist, and likewise within the framework of road safety education in the family, in kindergarten and at school, children acquire traffic-related knowledge and skills which establish a basis for later acquisition of the competence required to drive a motor vehicle. Even as a passenger, youngsters and children learn how driving “functions” by way of the driving behaviour of the vehicle driver; this social learning⁷ similarly influences their own later driving behaviour (SHOPE, 2006). The acquisition of driving and traffic competence is in the end also closely linked with the acquisition of basic social competences (e.g. the readiness to show consideration for others, the ability to adopt other perspectives) and the internalisation of social values and norms in the course of personality formation. In this respect, the preparation of novice drivers for their independent participation in motorised road traffic is accomplished within a long-term (traffic) socialisation process⁸, in which driving licence acquisition represents merely one period. This socialisation process includes targeted education and teaching processes in different (educational) institutions.

According to SCOTT (1995), institutions provide regulative, normative and cultural-cognitive structures (the three so-called “pillars”)⁹, which in turn contribute to social stability by establishing binding obligations and rights to govern the actions of community members. Novice driver preparation can also be perceived as an institution: It is

⁷ LEFRANCOIS (1994) defines social learning as the learning of those behaviours which are socially accepted (and accordingly those which are not accepted).

⁸ HURRELMANN (1999, p. 481) uses the term ‘socialisation’ to describe “... the process of personality formation characterised by the mutual dependence and permanent interactions of a socially conveyed social and material environment on the one hand and the biophysical structure of the organism on the other.”

⁹ For SCOTT (1995), the regulative pillar stands for those aspects of institutions which limit and regulate our actions. The focus is here placed on the stipulation of rules and on the monitoring and sanctioning of behaviour. The possible sanctioning of behaviour spawns an interest in the observance of rules on the part of the actors. The normative pillar represents the evaluative and obliging dimension of institutions. Values, as conceptions of what is justifiably desirable and as standards serving to assess behaviour, and norms, in the sense of specifications of how things are to be done, are reference points for the normative dimension of institutions. Objectives and the conventions to be observed for their attainment can also be assigned to this dimension. The cultural-cognitive pillar, finally, reflects the manner of the perception and acquisition of “reality” in a society; this is also influenced by cultural factors.

founded firstly on legislative instruments (e.g. the Road Traffic Act or Driving Licence Regulations) which constitute the regulative pillar; this defines the framework of driving competence acquisition (e.g. stipulations on minimum ages and probationary conditions). The second, normative pillar is represented by values such as environmentally aware driving and the assumption of responsibility towards “weaker” road users, as well as overarching aims such as an improvement in road safety. The contents and forms of driving and traffic competence acquisition and the organisations and individuals involved in this acquisition process (e.g. schools, driving schools, Technical Examination Centres, police, family), finally, can be assigned to the sphere of the third, cultural-cognitive pillar. In conclusion, it can be determined that institutions are in the final analysis systems of rules which engender a certain social order and, with regard to socialisation processes, that (educational) institutions serve to promote and formalise socialisation. In this educational-sociological sense, novice driver preparation represents an institution. If the institutional meaning of the concept of “novice driver preparation” is accentuated, this leads to a certain strengthening of the focus on driving licence qualification, without losing sight of the adjacent aspects of competence acquisition.

In accordance with the presented institutional understanding of the concept, novice driver preparation can be defined as the entirety of all conditions and measures which are laid down in legislation or, beyond that, provided and used¹⁰ specifically in a particular cultural context to permit the learning of independent, safe and responsible driving of a motor vehicle in public road traffic and demonstration of the necessary knowledge and ability.

The target orientation and functionality of this definition in the context of driver licensing, serves to specify a core system within the initially described socialisation process which covers all factors influencing the acquisition of driving and traffic competence. Such a functional understanding of the concept is in line with the international terminology¹¹

¹⁰ The necessity to consider not only educational offers, but also their actual use, was discussed by FEND (2004), who here distinguished between “formal structures” and “activity structures”.

¹¹ In English-language literature, the concept of the “preparation” of novice drivers is used in such a functional sense. DRUMMOND (1989), for example, writes: “... whether it is called pre-driver education, (advanced) driver training, or post-licence, defensive driving or driver improvement, the general aim remains the same. This aim is in general terms to ensure that the beginning driver is ‘equipped’ to undertake the driving task safely when a licence is first obtained or through remedial treatment in the subsequent stages of driving.” LONERO,

and also permits appropriate representation of the various optional avenues of preparation for participation in motorised road traffic and the conditions of their use. On the basis of an institutional understanding of the concept, novice driver preparation is deemed to begin with the first activities aimed specifically at establishing necessary (competence) prerequisites for the driving of a motor vehicle, and ends with the lifting of all special restrictions imposed on the novice drivers’ solo participation in motorised traffic.

For reasons of practicality, recourse to an institutional understanding of the concept of “novice driver preparation”, and thus delimitation of the subject under analysis, also seems expedient for the present report. It is true that a comprehensive understanding from the perspective of socialisation theory would provide the best, complete description of the prerequisites for safe participation in motorised road traffic by a novice driver, but the presentation of driving and traffic competence acquisition in such complexity is beyond the scope of an international survey of systems of novice driver preparation. Consequently, the following presentations of the national systems of novice driver preparation will restrict themselves to the corresponding core systems, and will only address the wider scope where there is close interaction with the core system – for example where the participation in motorised road traffic is a subject of road safety education in schools or of specifically targeted safety campaigns.

2.2.3 Structural properties of systems of novice driver preparation

The descriptions in the present project report are intended, on the one hand, to provide an insight into the individual legal frameworks on which the national systems of novice driver preparation are based. At the same time, they are to illustrate the specific learning conditions which such statutory regulations may entail for novice drivers from the perspective of teaching and learning theory. To be able to address these two aspects in a single step, it is necessary to apply system models which permit both mapping of the relevant influences for the

CLINTON, BROCK, WILDE, LAURIE and BLACK (1995) similarly favour a concept definition which goes beyond formal driver education and includes also the contributions of the family and society, as well as regulatory influences: “A better term would be one that implies activation and coordination of family, community and regulatory influences along with expanded instruction!”

learner from the learning environment, and classification of the legal factors.

According to BRONFENBRENNER (1981), an individual's "learning environment" can be viewed as a complex set of nested subsystems. These subsystems influence each other and can be described by way of four observation levels, namely as micro-, meso-, exo- and macrosystems. In conformity with CORTINA (2006), these system levels can be illustrated as follows with regard to the learning environment for novice driver preparation:

- Observations on the microsystem level refer to the immediate learning environment as it is experienced directly by the individual learner and in which the learner is active (e.g. the teaching materials available in the classroom or the behaviour of fellow learners). Descriptions of the learning environment on the microsystem level thus always refer to concrete teaching and learning situations, such as the specific situation in a driving school vehicle.
- The mesosystem level considers the interactions between microsystems. According to PREISER (2003, p. 243), "... microsystems with which a person comes into direct contact, either simultaneously or sequentially, stand in mutual relationships with each other and with that person; they may support each other, but could also act in opposition." In the context of novice driver preparation, the mesosystem level refers to mutual relationships between the individual microsystems in which the learning processes for a novice driver take place (e.g. the group attending theory classes, exercises in a driving simulator, practical learning in real traffic). One approach to identify common features and differences between national systems of novice driver preparation could be to describe the microsystems in which driving competence acquisition takes place, the sequence in which these microsystems are arranged, and how the learning processes in the different microsystems are referred to each other from the didactic perspective (e.g. whether the driving instructor returns to elements of theoretical training in the context of practical training, and thus whether it is possible to substantiate the theoretical content by way of specific application references).
- On the exosystem level, particular attention is to be paid to those subsystems which, despite not being directly associated with the individual concerned, nevertheless influence what happens within his microsystems. The

career status of the parents, for example, influences the family learning environment for their children, even though the parental workplace is not immediately accessible to the children. With regard to novice driver preparation, significant influencing factors attributable to the exosystem level include the qualification and regular further training of driving instructors and examiners, or quality control measures in the system of training and testing. Even though such factors are generally unknown to the novice driver, they can still often determine his immediate training and test situation to a considerable degree (e.g. because a qualified driving instructor is better able to give targeted support to the novice driver's learning processes through suitable teaching and learning methods).

- BRONFENBRENNER (ibid.) explains the necessity to describe structures on the macrosystem level with the fact that, within any given society, the characteristics and interactions of micro-, meso- and exosystems are often considered "normal" by the members of that society and are thus only rarely questioned. Structural differences on the macrosystem level thus become visible above all through intercultural comparison. Referring to novice driver preparation, this could apply to the superordinate framework of legal and organisational conditions, which specify, for example, the age at which it is possible to commence driver training, the persons who are permitted to offer certain training components, and which driving licence tests must be passed. An analysis of the systems of novice driver preparation on the macrosystem level is thus able to identify and clarify systematic differences between the individual countries.

This sketched differentiation of the system levels defined by BRONFENBRENNER (ibid.) to describe social phenomena is to serve the present project as a means to locate the properties defined and analysed for its descriptions of systems of novice driver preparation within a teaching and learning theory context. At the same time, it offers a possibility to structure the diversity of variables influencing driving competence acquisition, and to allocate corresponding functions to these variables in the particular system of novice driver preparation¹². To

¹² The correlations between teaching/learning processes on the microsystem level and those on other system levels are central topics for research in education and educational sociology. For a general overview on the subject of intended measures on the

obtain a more detailed picture of the novice driver's learning environment, the factors which can be assessed on the microsystem level are to be considered more specifically in the following chapter.

2.2.4 Teaching/learning situations in novice driver preparation

According to HASSELHORN and GOLD (2009, p. 22) the immediate learning environment for the learner comprises, on the microsystem level, "... the teacher and the learning conditions in respect of media, content and context." KRAPP, PRENZEL and WEIDENMANN (2006) define the term "learning environment" in a similar manner: They place the "learning person" in the centre of the teaching/learning situation, surrounded by "media", "educators", the "pedagogically arranged environment" and the "natural environment" as the prototypical components with which the learner interacts (see Fig. 1).

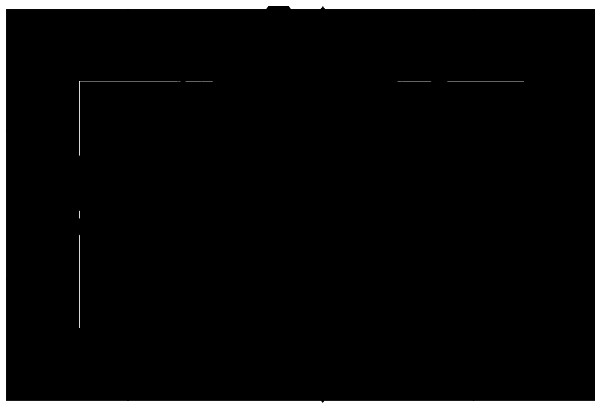


Fig. 1: Prototypical components of teaching/learning situations (modified after KRAPP et al., 2006)

According to KRAPP et al. (2006, p. 26), learning thus always takes place "... in interaction with the circumstances and requirements of the human and material environment." This interaction, however, must not necessarily stand under human supervision; it may be – even exclusively – media-controlled, and is steered in a particular direction in its entirety by virtue of a correspondingly planned and designed teaching/learning arrangement. With regard to the interaction between the learner and his natural or pedagogical environment, it must be assumed that different potential control relationships will apply: In teaching/learning situations in which the control factors (e.g. the specification of a learning path or time structure) of the pedagogically arranged learning environment dominate, the

probability of reactive, externally controlled learning is increased; in teaching/learning situations in which these control factors are less dominant, the learner steers the learning process himself to a greater extent.

The presented components represent a suitable basis on which to determine essential descriptive properties for teaching/learning situations in novice driver preparation on the microsystem level; this point will be taken up again shortly. With regard to driving competence acquisition and novice driver preparation, the distinction made by KRAPP et al. (ibid.) between a primarily pedagogical environment arranged in accordance with certain control factors, on the one hand, and a natural environment on the other, is reflected, for example, in the differences between formal¹³ driver training (e.g. theoretical and practical instruction in a driving school) and informal forms of learning (e.g. independent learning with teaching media or driving experience with a lay accompanist). It is firstly necessary to distinguish between formal and informal teaching and learning forms in the following because they are assigned very different levels of importance in the national systems of novice driver preparation. At the same time, these teaching and learning forms differ very strongly in respect of their didactic function and the associated expense. In Germany, for example, basic practical driving skills are conveyed and acquired within the framework of formal driver training, which involves relatively high financial costs for the learner and is not least for this reason completed within a very narrow period of time. Consequently, methodical structuring of the available learning time and a didactically founded procedure are necessary in order to achieve the prescribed learning objectives within the available number of teaching units. In the case of informal learning forms, such as practical driving experience with a lay accompanist, the possibilities for learning are significantly less dependent on the factors time and financial expense; this, and likewise the general lack of pedagogical qualifications on the part of the accompanist, results in a less pronounced didactic structuring of the learning process.

macrosystem level and their "inherited anchoring on the microsystem level", see also BRÜSEMEISTER (2008).

¹³ According to DOHMEN (2001), "formal training" is understood to mean learning which can be characterised, for example, by its taking place in an educational institution, its being bound to a tutor, and its organisation in accordance with a plan or curriculum. The term "informal learning", on the other hand, is taken to refer (ibid.) to primarily independent learning, which takes place in the individual's immediate realm of life and experience and thus essentially outside any educational institutions.

Returning to the previously expressed theoretical basis for an appropriate set of properties to describe systems of novice driver preparation and teaching/learning situations: For a differentiated presentation of the circumstances of novice driver preparation in different countries (see Chapter 1), it is recommended, in accordance with the theoretical positions, to describe the learning environment for novice drivers in each country in general (i.e. on the macro-, exo- and mesosystem levels), and the entailed microsystems with their typical teaching/learning situations in particular. As descriptive properties for the microsystems, the pedagogical arrangements of typical teaching/learning situations suggested by KRAPP et al. (2006), including the discussed contents and methods, as well as the possibly present instructor and the media used, seem expedient. With reference to these properties, the following chapter now seeks to elaborate an overarching terminology to describe different typical teaching/learning situations. By way of this terminology, it will become possible to structure the process of novice driver preparation in terms of its timeline and the relevant forms of teaching/learning and testing.

2.3 Terminology to describe novice driver preparation

2.3.1 Phases of novice driver preparation

The first stage of novice driver preparation (i.e. the core system) consists in obtaining a driving licence, with which the driver is permitted to participate in motorised road traffic without the obligatory accompaniment of a person with appropriate driving experience (driving instructor or approved accompanist). The novice driver prepares specifically for achievement of this initial goal during the first phase of the overall process of novice driver preparation by acquiring traffic-related basic knowledge and practical driving skills. The scope and design of this first phase of novice driver preparation, and in particular the provision of effective preparatory measures (forms of teaching/learning and testing) are decisive in determining how safely the novice driver masters the transition to solo participation in motorised road traffic. The outstanding feature of this phase is thus the comprehensive preparation of the novice driver for his solo driving career in the sense of a transitional challenge¹⁴. The obligatory presence of an experi-

enced accompanist, whether that be a professional driving instructor or lay person (e.g. a parent), means that driving practice is gathered exclusively under immediate supervision during this phase; consequently, this first phase of novice driver preparation can be aptly described as the “supervised learning phase”¹⁵.

From the perspective of driving safety, the transition to the subsequent phase of solo driving is the second crucial reference point for safety-related considerations, as it is during the first period of solo driving that novice drivers face by far the greatest risk of accident involvement of their whole driving career (“initial peak of endangerment”). This initial risk diminishes relatively quickly with increased practical driving experience (GREGERSEN et al., 2000; SCHADE 2001; SAGBERG, 2002; MAYHEW, 2003). It results essentially from the novice driver’s still inadequately developed driving skills, which will often not yet encompass all the automatic routines necessary for safe driving. At the same time, the novice driver now lacks the social control and support which was previously offered by the accompanist in new or unexpected hazardous situations. In view of the persisting, above all cognitive skill deficits (“traffic sense”), many licensing systems impose special regulations on novice drivers during their initial period of solo driving. Such regulations are aimed at preventing and avoiding dangerous driving behaviour (e.g. probationary driving licences, stricter alcohol limits compared to experienced drivers, exclusion of night-time driving, restrictions relating to peer passengers, learner registration plates) and thus constitute a protective behavioural framework for the independent enlargement of driving experience.

With the commencement of solo driving, the new driving licence holder must already demonstrate that he is equipped to handle the demands of road traffic. On the other hand, this is also a phase of intensive continued learning, as increasing driving experience leads to a significant further enhancement of driving competence; accordingly, this phase can be described pertinently as the “autonomous learning phase”. It ends with the

developmental tasks arise from the interaction of maturing processes, cultural pressure, social expectations and individual goals and values. The successful accomplishment of developmental tasks and the associated acquisition of competence are at the same time the key to successful mastering of subsequent demands and developmental tasks.

¹⁵ In the field of vocational qualification and further training, supervision is understood as a form of accompaniment in which the actions of the learner are observed by a person experienced in the action concerned and the learner is offered advice aimed at improving his action reflexes and action quality.

¹⁴ Such transitional challenges are occasionally also termed “developmental tasks”, which suggests a particularly high socialisation component. According to HAVIGHURST (1948),

lifting of any special protective regulations applicable to novice drivers under the individual national system of novice driver preparation. For an international system comparison, it is interesting to consider the risk-reducing measures which are stipulated for the autonomous learning phase in each case.

Summarising the considerations presented above, it is possible to distinguish three characteristic phases of novice driver preparation as references for system descriptions: A “supervised learning phase”, which lies before the commencement of solo driving; an “autonomous learning phase”, in which the novice driver is permitted to drive solo, without an obligatory accompanist, but is still subject to special novice driver restrictions; and a subsequent phase in which the novice driver already holds a driving licence free of special conditions and is thus subject to the same rules and regulations as an experienced driver (see Fig. 2).

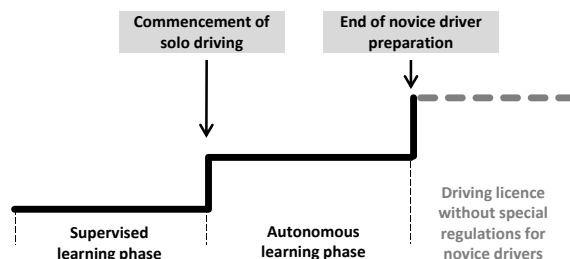


Fig. 2: Phases of novice driver preparation

This structure provides for classification according to the scope of driving entitlements granted. The ensuing three-tier basic structure for novice driver preparation is characteristic of the majority of driver licensing systems today.

2.3.2 Forms of teaching/learning and testing

In the course of novice driver preparation, the learner driver proceeds step by step via a diversity of teaching/learning situations (see Chapter 2.2.4) and in this way builds up the knowledge and abilities required for solo participation in motorised road traffic. The teaching/learning situations are each unique in their own right; the social actors, their activities and the learning environment differ from case to case. To be able to use the construct of teaching/learning situations for a comparative description of systems of novice driver preparation, therefore, it is necessary to reduce this situation diversity, to abstract those situation properties which are not essential in the traffic psychology context, and to compress teaching/learning situations with similar characteristic properties into superordinate classes; the latter are here to be re-

ferred to as “elements of preparation”. Functional aspects permit firstly the identification of elements of preparation whose function lies primarily in the conveying or acquisition of traffic-relevant knowledge and abilities; in the following, such elements are to be termed “teaching and learning forms”. At the same time, it is possible to distinguish elements of preparation which serve to verify the knowledge and abilities necessary for safe participation in road traffic; these elements are to be termed “forms of testing”.

It would seem at first that classification of the elements of preparation as either forms of teaching/learning or forms of testing does not achieve absolutely sharp discrimination, as the aspects “teaching/learning” and “testing/verification” complement each other in the pedagogical process: Knowledge and abilities are also conveyed and acquired in each test situation, while conversely, processes of knowledge transfer and acquisition generally encompass also verification of the attainment of learning objectives.

Closer consideration of the forms of teaching/learning and testing in different national systems of novice driver preparation indicates that these elements are handled in very similar manner with regard to their general implementation and function, though differences are found in respect of specific design details. For example, all systems incorporate a theoretical and a practical driving test to assess traffic-related knowledge and practical driving skills. Differences are to be noted in the applied methodology (e.g. with reference to the test duration and test contents), the times at which the driving tests are taken, and the didactic integration of these forms of testing into the process of novice driver preparation.

By defining fundamentally distinguishable elements of preparation (i.e. microsystems, see Chapter 2.2.3) within the process of novice driver preparation, and through a corresponding comparison of the different national systems, it is thus possible to elaborate differences and common features on the mesosystem level (ibid.). The forms of teaching/learning and testing present in the individual systems can here be identified not only by way of their inherent properties, but also with regard to their temporal positioning in the process of novice driver preparation. To this end, the following sections serve to define first the different fundamentally distinguishable teaching and learning forms, and subsequently the different forms of testing to be used in the present report for system description. For all definitions, characteris-

tic examples of country-specific implementations are mentioned as illustration.

“Theory classes”

The term “class” describes teaching/learning situations in which learning processes are initiated, encouraged and facilitated systematically – i.e. with pedagogical intention and in an organised manner – within a certain institutional framework by professional instructors (REINMANN & MANDL, 2006). Following this general definition, the teaching/learning form “Theory classes” designates formal teaching/learning situations in novice driver preparation in which a professional instructor conveys primarily driving- and traffic-related knowledge content (e.g. legal foundations, traffic regulations, recognition and avoidance of hazardous situations) to the learner driver. Theory classes are organised for groups of learners of different numbers. The learning environment may be characterised by typical media (e.g. presentations, film sequences). Both instructive teaching/learning methods (e.g. lectures) and discursive methods (e.g. group discussions) may be used. Essential differences in the country-specific provisions for theory classes refer, for example, to the question of mandatory attendance, the prescribed overall duration of the classes and their organisational integration in the institutional context (e.g. courses offered by general schools or driving schools).

“Independent theory learning”

“Independent theory learning” is characterised by the fact that the learning activity is controlled primarily by the learner himself. The learning processes can nevertheless be pre-structured to a varying extent, not least through the design of the media used for learning. The media offer the learner a certain scope of learning support (e.g. graphic presentations, progress assessment exercises, audio sequences); it is not necessary, however, for a professional instructor to be present to convey the content. Even so, the professional instructor may still assume an important role, for example through the initiation or indirect guidance of independent learning activities (e.g. advice on media selection, specification of exercises, preparatory tasks or revision in the formal classes). Media for independent theory learning are frequently textbooks presenting driving- and traffic-related knowledge. Computer learning programs enable interactive teaching/learning arrangements, while online offers permit integration into group-based or virtual learning structures. Country-specific differences exist, for example, with regard to the diversity of offers and the didactic design of the available learning media.

“Practical driving instruction”

“Practical driving instruction” comprises primarily instructive teaching/learning situations, in which application-oriented skills (e.g. vehicle operation and the mastering of traffic situations) are conveyed by a corresponding instructor (e.g. driving school instructor, lay instructor). The objective of practical driving instruction is in general the acquisition of driving skills as preparation for the driving test. It takes place mainly on public roads, but in part also on segregated practice grounds. The medium of teaching/learning is the opportunity for immediate use of a vehicle. Differences between the countries exist with regard to the extent to which content, didactic method and organisational aspects are specified in the form of teaching plans and curricula. Country-specific properties thus refer, for example, to the framework conditions for practical driving instruction (e.g. legally stipulated minimum number of hours, monopoly of professional driving instructors or permissibility of lay instruction) or the teaching/learning methods used (meaning above all driving under the supervision of an instructor, but also special forms such as “commentary driving”, in which the novice driver expresses his current perceptions, thoughts and action intentions while driving, or “independent driving”, where the instructor specifies merely a journey destination instead of giving detailed route instructions to the novice driver).

“Driving simulation training”

The objective of “Driving simulation training” is driving competence acquisition in driving and traffic situations which are simulated in a so-called driving simulator. The driving simulator is commonly a vehicle mock-up, in which driving action sequences and the participation in traffic (e.g. vehicle operation, traffic observation, vehicle positioning, speed regulation) can be practised under realistic conditions. For the simulation of certain tasks and for the acquisition of certain partial competences, however, it is also possible to use PC-based training possibilities. The term “driving simulation training” is thus also used in the following to refer to simple PC-assisted simulations comprising a computer with corresponding software, a monitor and possibly a steering wheel. As far as those forms of driving simulation training which go beyond a normal PC configuration are concerned, it is generally a component of formal driving school instruction and takes place under the supervision of a professional instructor. Irrespective of the technical features of the driving simulator and the correspondingly attainable complexity of the simulation, driving simulators are for the novice driver an opportunity to practise specific demands and the reactions

to rare situations relating to participation in motorised road traffic in a safe environment and to repeat such practice as often as he wishes. In driving simulation training – in contrast to practical driving instruction in real traffic – it is furthermore possible to make use of visual instructions and feedback (e.g. indication of an optimum driving line on the screen). The simulator session can also be recorded for a subsequent review of the virtual drive and, for example, discussion with the driving instructor. Country-specific differences with regard to driving simulation training are found above all in the extent of its use as a form of preparation and the development standard of the driving simulations available as means of instruction.

“Accompanied driving”

Through “Accompanied driving” under the supervision of a passenger with appropriate driving and traffic experience, a novice driver is able to further develop his driving competence, in the sense of driving practice, through a scope of actual driving in real traffic which far exceeds that possible within the framework of practical driving instruction. The longer-term development of practical driving experience guarantees that a higher level of skill, with a greater extent of automatic behaviour and driving routine, is already attained before the commencement of solo driving. The requirement of accompaniment serves to minimise the risk in this learning process. The accompanying passenger is not active on a commercial basis – the essential basis for the economical realisation of longer-term accompaniment – and is thus not an instructor within the framework of a formal learner-instructor relationship. Compared to a professional driving instructor operating on a commercial basis, his activities are governed neither by didactic objectives equatable to those of formal driver training nor by formal rules. In practice, it can be assumed that the actions of the accompanist fulfil primarily supervisory functions and only occasionally involve instructive aspects in the sense of targeted influence on the learning of the novice driver. Country-specific differences are to be seen especially in the defined relationship between accompanied driving and professional driving instruction. Three basic arrangements can be distinguished: Integration of accompanied driving and professional driving school instruction; accompanied driving after completion of formal driving school instruction; no specific rules governing the realisation of accompanied driving.

“Advanced training courses”

Whereas practical driving instruction is generally limited to the development of basic driving competence, an “advanced training course” builds upon

already existing (basic or more extensive) driving experience. One aspect common to advanced training courses in all the different countries is their central focus on attitudes to road safety and on the handling of hazards, and thus their intention to modify behaviour in the direction of a greater sense of responsibility; in this context, they may set different thematic priorities and cover a lesser or broader spectrum of course content (e.g. hazard recognition and avoidance, environmentally aware driving, influence of peer passengers). Advanced training courses usually combine theoretical modules with practical driving exercises. Where the focus is placed on hazard management, for example, certain hazardous situations can be simulated in a toned-down form (e.g. collision with a water curtain), and the relevant moments of endangerment and loss of control then discussed under the guidance of a professional instructor. In contrast to earlier forms of driver safety training, the content of advanced training courses today is no longer geared to the mastering of hazardous situations¹⁶, and instead concentrates on the early recognition and avoidance of hazards. With regard to advanced training courses, country-specific differences exist in terms of content orientation, the often voluntary nature of the courses (e.g. voluntary advanced training after obtaining a driving licence in Germany) or, in some cases, mandatory participation at a certain time (e.g. the obligatory “second phase” of formal driver training after the commencement of solo driving in Austria). Specific driver improvement measures prescribed in the case of traffic offences committed after the commencement of solo driving, which similarly target attitudes of relevance for road safety, can also be considered advanced training courses in the present sense.

“Solo driving under protective regulations”

Protective regulations for novice drivers are characterised in that they narrow the framework for participation in motorised road traffic, in order to reduce the exposure to risk in a phase of the novice driver's career in which driving and traffic competence are not yet fully developed and at the same time increased practical driving experience leads to dynamic competence growth. In the case of “accompanied driving” during the learning phase, low-risk conditions are achieved above all through the obligation of accompaniment. After the commencement of solo driving, further protective

¹⁶ One example of this form of hazard training is the “skid training” once practised in countries such as Finland, Sweden and the USA, which was geared primarily to the acquisition of reaction skills (MAYHEW, SIMPSON, WILLIAMS & FERGUSON, 1998; ENGSTRÖM, GREGERSEN, HERNETKOSKI, KESKINEN & NYBERG, 2003).

regulations serve as a basis for a safer behavioural framework, for example the exclusion of night-time driving or restrictions with regard to permissible passengers, as to be found in the overseas GDL systems, or else special probationary periods, as also encountered in many European countries. "Solo driving under protective regulations" can be considered an independent teaching/learning form, as it leads to a substantial improvement in driving competence and possesses its own specific institutional character and definability (as a shapeable learning setting).

It was already pointed out in Chapter 2.2.2 that, for reasons of practicality, the description of "novice driver preparation" in the present report must concentrate on the core area of measures relating to driver licensing. Nevertheless, wider-reaching forms of intervention in the context of novice driver safety are also to be presented within a certain scope. This refers, for example, to road safety education in schools and to broader road safety campaigns. Both of these teaching/learning forms address, in part, the same topics as theory classes in a driving school; on the other hand, they are implemented within a different framework of didactic possibilities (e.g. with regard to the level of detail and the opportunities for repetition and illustration), and it must thus be assumed that they yield independent and additional learning benefits. In the results of the present report, however, these forms of teaching and learning are only to be taken into account by way of an exemplary selection of novice-specific measures in selected countries.

"Road safety education in schools"

Common to all measures in connection with road safety education in schools (including both general and vocational schools) is the fact that – in accordance with their compulsory nature and content orientation – they are able to reach a wide group of participants in road traffic over long periods of time. It is possible, for example, to treat age-specific topics in the individual school grades (e.g. participation in traffic as a cyclist), and in doing so also to link traffic-related issues to other learning content covered by the school education. With regard to novice driver preparation, interesting measures are those which are related to motorised participation in road traffic.

"Road safety campaigns"

In many countries, attempts are made, through various forms of mass communication, to influence the safety-enhancing behaviour of traffic participants in general, and that of certain target groups (e.g. cyclists, pedestrians, children starting school) in particular. Road safety campaigns are initiated

and realised (usually over a specific limited period) with the aims of raising awareness, spreading information and changing attitudes. The thematic content, the means of communication used (e.g. Internet, posters) and the chosen message form (e.g. deterrence, peer-to-peer communication) are matched to the relevant target group and the associated areas of behaviour (e.g. observance of speed limits, influence of alcohol in road traffic). Safety campaigns generally comprise different concerted measures, and may also include intensified police enforcement during the period of the campaign to assess its effectiveness. In their entirety, safety communication measures are in a sense "permanent activities of society" (GSTALTER, 1988); a presentation of selected measures relating to novice drivers is thus also appropriate for the present description of systems of novice driver preparation.

As mentioned at the beginning, this chapter is to consider not only forms of teaching and learning, but also the forms of testing. The above teaching/learning forms share a predominantly competence-building function. By contrast, the forms of testing presented below serve primarily to verify this competence.

"Knowledge test"

A "knowledge test" (or "theory test") serves to demonstrate an adequate scope of driving- and traffic-related knowledge. To date, this is usually limited to the verification of knowledge by way of test questions requiring explicit statements on rules and facts. By using visual media, it is also possible to assess the application of knowledge. Computers with multimedia capabilities hold particular potential in this respect, as they are able to depict driving and traffic situations in a near-realistic manner and can furthermore record and evaluate non-verbal responses from the novice driver. The latter approaches, however, are covered below under the heading "Traffic perception test". Knowledge tests can be based on a diversity of test media; they are conducted orally, as "paper-and-pencil tests" or else – increasingly in recent times – with the aid of a computer. The questions in knowledge tests generally follow standardised formats (e.g. multiple-choice questions, true/false questions, gap-fill questions). Country-specific differences in the implementation of knowledge tests concern, for example, the number of test items to be answered, the time allowed for answering, and the chosen question formats.

"Traffic perception test"

In this form of testing (also referred to as a "hazard perception test"), traffic perception and hazard

recognition are the test categories placed in the foreground. The predominant test method is to demand a correct reaction or the correct “driving decision” in the displayed scenario; at the same time, non-verbal response is also measured (e.g. the reaction time before a computer input). The computer is here the essential medium for task presentation and the recording of reaction times. Country-specific differences lie above all in the number and diversity of tasks to be solved, the style of presentation of the traffic scenarios (static or dynamic), the form of reaction acquisition (selection of an action decision, identification of a hazard cue) and the evaluation of reactions (time window for solution input).

“Learner assessment”

“Learner assessments” serve mainly to measure and provide feedback on the achieved level of learning. The contents and methods of learner assessments are determined by the forms of teaching and learning used and the envisaged learning objectives. Within the framework of road safety education in schools and in connection with driving school training (see “Theory classes” and “Practical driving instruction” above), they represent a basis for the planning of subsequent teaching/learning situations, by indicating the learning objectives which have already been attained and the quality of this attainment. Such training-immanent learner assessments are encountered, for example, as means to check traffic-related knowledge during theory classes or as driving exercises with subsequent performance appraisal during practical driving instruction. In some countries, furthermore, learner assessments are used to evaluate mastering of the requirements of relatively complex learning objectives, and thereby assume the character of a test-like preparatory measure. In a similar manner to other forms of testing, the successful completion of such learner assessments may also be integrated into the system of novice driver preparation as a prerequisite for progress to subsequent steps in the learning process or for the granting of a driving licence. The (test) methods used for such complex learner assessments in the different countries range from partial or even the full simulation and assessment of tests (“preliminary tests”) to combinations of a driving exercise and subsequent discussion (“consultations”).

“Driving test”

A “driving test” is a form of testing characterised in that the novice driver must demonstrate a certain level of driving skill by operating and handling a vehicle in real traffic. The displayed driving behaviour is observed and assessed more or less sys-

tematically by a professional examiner, who structures and designs the test situation by specifying certain test contents (e.g. vehicle operation, basic driving manoeuvres and driving tasks, such as negotiation of a roundabout) and applying certain test methods (e.g. driving according to instructions given directly by the examiner or the instructions of a navigation system). Country-specific differences exist in the degree of standardisation of the driving test (e.g. the specification of demand standards – driving tasks, test routes and observation categories – as well as assessment and decision criteria), in the test duration, in the persons involved in a test (e.g. the presence of a driving instructor as the legally responsible driver), and in the positioning of driving tests within the process of novice driver preparation. Last but not least, the test concepts differ with regard to their foundations in test didactics and teaching/learning theory.

When differentiating between the various forms of teaching/learning and testing, it must be noted that, for reasons of practicality and in accordance with the usual concept definition, the focus must be placed on functional aspects. Such a functional distinction, however, faces certain limitations with regard to the attainable conceptual discrimination. As mentioned at the beginning, both teaching/learning forms and forms of testing represent teaching/learning situations for the novice driver (see above): On the one hand, testing also brings a learning effect for the novice drivers, through application, consolidation and expansion of their previously acquired stock of knowledge and skills. At the same time, teaching/learning forms always incorporate also a testing component, as they indicate the availability of competences for the solution of learning tasks. The teaching/learning forms described here are also interlinked within the learning process and may well overlap in certain aspects; the same applies for the described forms of testing. Training content serving to develop safety-relevant attitudes, for example, need not necessarily be assigned to the advanced training courses; it will generally also be a part of theory classes. Similarly, the examiner is also able to assess declarative knowledge (e.g. the required minimum depth of tyre tread) by way of oral questions during the (practical) driving test.

The conceptual framework presented here, focused as it is on the functional aspects of the various elements of preparation, is now to be used to describe and compare the national systems of novice driver preparation, above all with regard to the constituent forms of teaching/learning and testing, in their country-specific design and arrangement. As already explained when defining “novice driver

preparation” as the subject of analysis (see Chapter 2.2.2), the descriptions are to refer primarily to the core systems of novice driver preparation in each case. Alongside the forms of teaching/learning and testing, further associated elements and structures are to be taken into account,

for example quality assurance measures. A schematic overview of the core system components considered by the present project is shown and related to the previously defined phases of novice driver preparation (see Chapter 2.3.1) in Fig. 3.

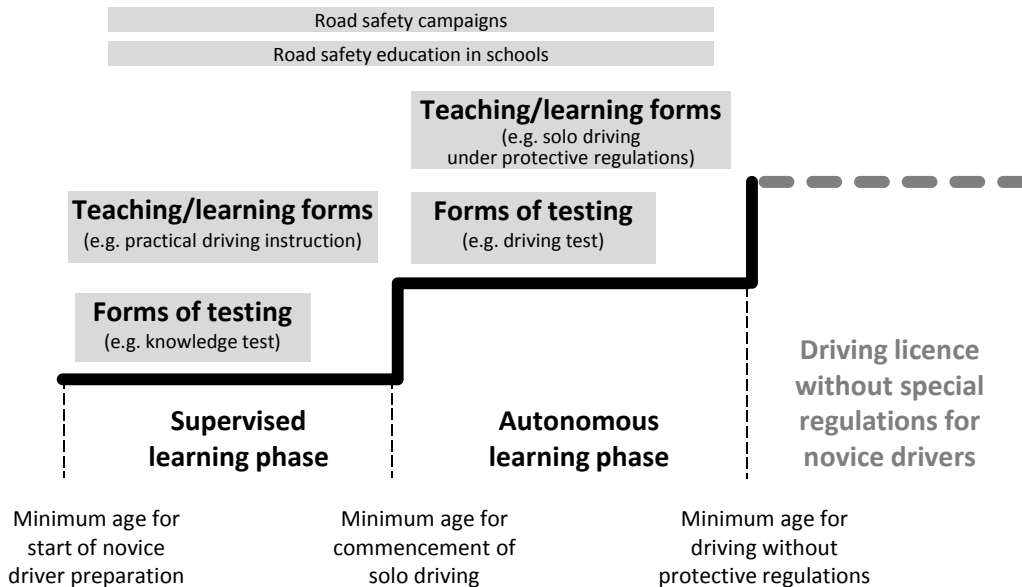


Fig. 3: Overview of the core system components in novice driver preparation

2.4 Country selection and data collection

Since publication of the BAST research report “Driver training in Europe” (NEUMANN-OPITZ et al., 1995), the European Union has grown from 15 to currently 27 member states. Against the background of this expansion and its influences on road traffic policies for Europe as a whole, all the member states of the European Union and further European states with high traffic volumes have been included in the list of countries to be taken into account by the present report, in order to achieve as complete a picture as possible of the conditions and measures relating to novice driver preparation in Europe.

Given the objective of a comprehensive analysis of different systems of novice driver preparation, the country selection includes also a number of driver licensing systems from North America and Australia/Oceania, which are based on the concept of “graduated driver licensing” (GDL). In total, the present report describes the systems of novice driver preparation in 44 countries¹⁷. Within this

overall selection, it is possible to define various groups of countries which are of particular interest under certain aspects. Relatively high traffic volumes and high population, for example, characterise the major West European countries Germany, France, Great Britain, Italy and Spain (here to be grouped under the abbreviation “WEU”). The special situation of cross-border traffic directs attention to the nine countries which are Germany’s immediate neighbours: Drivers trained under different licensing systems here share a common traffic environment. It thus seems particularly expedient to analyse the conditions and measures contributing to novice driver preparation in the neighbouring countries Belgium, Denmark, France, Luxembourg, the Netherlands, Austria, Poland, Switzerland and the Czech Republic (here to be grouped under the abbreviation “NBR”).

A further logical group comprises those countries which have implemented a graduated driver licensing system. The conditions and measures relating to novice driver preparation in such “GDL countries” (here to be grouped under the abbreviation

¹⁷ Correctly speaking, the selection comprises both sovereign states and federated units of national states. In the interest of

better legibility, however, the term “country” is to be used in the present report to refer to both national states and such federated units (federal states, provinces).

“GDL”) exert a strong influence on current international discussions of novice driver safety. The GDL countries taken into account in the present project include the Australian states New South Wales, Queensland and Victoria, the Canadian provinces Nova Scotia, Ontario and Québec, and the US states California, Florida and North Carolina.

Last but not least, it is considered useful to take a closer look at those countries which have already realised significant further developments in their systems of novice driver preparation in the past, with the objective of raising their potential to improve novice driver safety. These reform-oriented countries (here to be grouped under the abbreviation “REF”) play an important role for the further development of safety-enhancing measures and for the testing and introduction of innovative approaches. Following their elaboration and testing of a series of reform projects over the past two decades, and in view of the topicality for the European discussion of novice driver safety, attention is here drawn especially to the countries Finland, Norway, Sweden, the Netherlands and Austria.

To facilitate data collection, features contributing to a meaningful system description were determined for the defined forms of teaching/learning and testing (see Chapter 2.3.2). On the basis of these features, relevant country-specific information was collected. For certain areas, it was possible to make use of secondary sources (e.g. survey results, project reports), which were initially evaluated and then tested for plausibility and consistency against information available from other sources. A few of the sources taken into account by the present project report are listed briefly in the following:

- Information pertaining to driving licence testing was taken from the project “Theoretical and Practical Driving Tests in Europe” (BÖNNINGER, KAMMLER, STURZBECHER & WAGNER, 2005), which was conducted by the Institute for Applied Research on Childhood, Youth and the Family (IFK) at the University of Potsdam in 2005.
- It was furthermore possible to make use of the report on the CIECA Theory Test Project (CIECA, 2009), which contains detailed information on the theoretical driving test in those countries which are members of CIECA.
- For the area of driving instructor training, the European Driving Schools Association (EFA) provided the report “Requirements for

Professional Driving Instructors in Europe” (EFA, 2009).

Further sources were the websites of institutions involved in driver licensing (e.g. the responsible ministries, associations and enterprises associated with driver licensing). Last but not least, experts in the fields of driver training and driving licence testing were contacted in numerous countries and asked to provide information on the circumstances of novice driver preparation in their particular country by way of questionnaires and telephone interviews.

Before the project results are presented, attention must be drawn to possible limitations affecting interpretation of these results. Such limitations arise, on the one hand, from ongoing changes and further developments in the individual systems of novice driver preparation, as already mentioned in Chapter 1. This means that the information presented here will reflect the situation at the time of data collection, but may not take into account changes which have been introduced in the meantime. Secondly, an international presentation of systems of novice driver preparation must necessarily restrict itself to essential descriptive features. The information contained in this report thus always represents a selection, and is furthermore also subject to the actual availability of corresponding information from the countries concerned.

Table 1 lists those countries and institutions from which data on the system of novice driver preparation was collected either through surveys among local experts or as publicly accessible information. It furthermore indicates the special interest group(s) to which the country concerned can be assigned (see above). In all subsequent overview tables in the present report, individual cells are filled in grey where no substantiated information could be obtained for the relevant topic or feature in a particular country. At the same time, a corresponding remark is given in the overview tables if individual elements of preparation (e.g. accompanied driving) are not inherent to the system of novice driver preparation of a certain country.

Country		Group	Institution
D	Germany Europe (EU)	WEU	TÜV DEKRA arge tp 21
			Bundesvereinigung der Fahrlehrerverbände e.V. (BVF)
E	Spain Europe (EU)	WEU	Dirección General de Tráfico (DGT)
			Confederación Nacional de Autoescuelas (CNAE)
GB	Great Britain Europe (EU)	WEU	Driving Standards Agency (DSA)
			Motor Schools Association of Great Britain (MSA)
I	Italy Europe (EU)	WEU	Ministry of Transport
			Unione Nazionale Autoscuole Studi Consulenza Automobilistica (U.N.A.S.C.A.)
F	France Europe (EU)	WEU/NBR	Institut National de Sécurité Routière et de Recherches (INSERR)
B	Belgium Europe (EU)	NBR	Groepering Van Erkende Ondernemingen Voor Autokeuringen En Rijbewis (GOCA)
			Federatie van Beroepsautorijsscholen van België (FEDERDRIVE)
CH	Switzerland Europe	NBR	Bundesamt für Straßen (ASTRA)
			Schweizerischer Fahrlehrer Verband (SFV)
CZ	Czech Republic Europe (EU)	NBR	Ministry of Transport
DK	Denemark Europe (EU)	NBR	Danish National Police
			Dansk Kørelærer-Union
L	Luxembourg Europe (EU)	NBR	Ministère du Développement durable et des Infrastructures - Département des transports
			Fédération des Maîtres Instructeurs Du Grand-Duché De Luxembourg
PL	Poland Europe (EU)	NBR	Ministerstwo Infrastruktury
			Wojewódzki Ośrodek Ruchu Drogowego (WORD)
A	Austria Europe (EU)	NBR/REF	Bundesministerium für Verkehr, Innovation und Technologie (BMVIT)
			Fachverband der Fahrschulen
NL	Netherlands Europe (EU)	NBR/REF	Centraal Bureau Rijvaardigheidsbewijzen (CBR)
			Bond van Automobielhandelaren en Garagehouders (BOVAG)
FIN	Finland Europe (EU)	REF	Finnish Vehicle Administration (AKE)
N	Norway Europe	REF	Statens vegvesen
			Autoriserte Trafikkskolers Landsforbund (ATL)
S	Sweden Europe (EU)	REF	Road Traffic Departement - Driving Licence Unit
			Sveriges Trafikskolors Riksförbund (STR)
BG	Bulgaria Europe (EU)	-	Ministry of Transport, Information Technology and Communications
CY	Cyprus Europe (EU)	-	Department of Road Transport
EST	Estonia Europe (EU)	-	Estonian Road Administration
			Eesti Autokoolide Liit (EAKL)
GR	Greece Europe (EU)	-	Ministry of Infrastructure, Transport and Networks
H	Hungary Europe (EU)	-	National Transport Authority
HR	Croatia Europe	-	Hrvatski Autoklub (HAK)
IL	Israel Asia	-	Ministry of Transport
IRL	Ireland Europe (EU)	-	Road Safety Authority (RSA)
IS	Iceland Europe	-	Road Traffic Directorate

Country		Group	Institution
LT	Lithuania Europe (EU)	-	Ministry of Transport and Communications
			REGITRA
LV	Latvia Europe (EU)	-	Ministry of Transport (CSDD)
			Latvijas Profesionālo Autoskolu federācija (LPAF)
M	Malta Europe (EU)	-	Malta Transport Authority
P	Portugal Europe (EU)	-	Ministerio da Administração Interna
RO	Romania Europe (EU)	-	Direcția Regim Permise de Conducere și Înmatriculare a Vehiculelor
RUS	Russia Europe/Asia	-	General-Staatsdepartement für Automobilinspektion (GAI)
SK	Slovakia Europe (EU)	-	Národná asociácia stanic technickej kontroly (STK)
SLO	Slovenia Europe (EU)	-	Ministry of the Interior
TR	Turkey Europe/Asia	-	Ministry of Education
AUS/NSW	New South Wales Australia/Oceania	GDL	Roads and Traffic Authority (RTA)
AUS/QLD	Queensland Australia/Oceania	GDL	Department of Transport and Main Roads
AUS/VIC	Victoria Australia/Oceania	GDL	VicRoads
			Australian Driver Trainers' Association (ADTA)
CDN/NS	Nova Scotia North America (Canada)	GDL	Government of Nova Scotia
CDN/ON	Ontario North America (Canada)	GDL	Ministry of Transportation
CDN/QC	Québec North America (Canada)	GDL	Société de l'assurance automobile du Québec
NZ	New Zealand Australia/Oceania	GDL	New Zealand Transport Agency (NZTA)
USA/CA	California North America (USA)	GDL	California Department of Motor Vehicles
USA/FL	Florida North America (USA)	GDL	Florida Department of Highway Safety and Motor Vehicles
USA/NC	North Carolina North America (USA)	GDL	North Carolina Department of Transportation – Division of Motor Vehicles

Tab. 1: Overview of the 44 countries, federal states and provinces taken into account in the present project

Additional remarks:

The individual columns show the country abbreviations used in all subsequent tables, the relevant country (or federal state/province) together with reference to its continent (and, where appropriate, its status as a member of the European Union, a Canadian province or a US federal state), and the assignments to a group of countries of special interest (WEU = major West European countries, NBR = neighbouring countries around Germany, GDL = countries with a GDL system, REF = reform-oriented countries). The right-hand column indicates the institutions from which experts were questioned or else publicly accessible information was obtained.

3 International comparison of systems of novice driver preparation

3.1 Prerequisites for access and general conditions

3.1.1 Minimum age requirements

The individual national laws and regulations pertaining to novice driver preparation contain statutory rules to govern access to participation in motorised road traffic and to define a general framework of conditions for the course and duration of the corresponding learning process. These rules include specifications of a minimum age for commencement of or progress to particular phases of this process. Further access prerequisites to be taken into account, beside the age requirements, are certain criteria documenting a person's fitness to drive and the financial cost associated with obtaining a driving licence.

The minimum age requirements for the commencement of certain phases of the system of novice driver preparation usually refer either to enrolment in a driving school or to the application for granting of a “learner driving licence”, i.e. the necessary permission to learn to drive on public roads under the supervision of an experienced lay person – depending on the circumstances of the national system. In Germany, the supervised learning phase begins with formal driver training in a driving school. This is possible at the earliest at an age of 17 years and 6 months (or 16 years and 6 months in case of participation in the model “Accompanied driving from age 17” (“Begleitetes Fahren ab 17”, “BF17”).

The commencement of solo driving (i.e. the novice driver's transition to the autonomous learning phase) is generally subject to both a minimum age requirement and the successful completion of certain tests, for which a minimum age also applies in most cases. According to § 10 of the German Driving Licence Regulations (Fahrerlaubnisverordnung, FeV), for example, the minimum age for granting of a class B driving licence is 18 years, subject furthermore to successful completion of a knowledge test (“theoretical driving test”) and a driving test (“practical driving test”). It is stipulated in § 16 FeV that the knowledge test can be taken at the earliest three months before reaching the minimum age of 18 years; the earliest date for the practical driving test is correspondingly one month before the candidate's 18th birthday. In case of participation in the “BF17” model, the minimum

ages are one year lower both for completion of the driving tests and for the issuing of a driving licence, albeit initially without an entitlement to drive solo. The minimum age at which a driving licence can be issued without special protective regulations for novice drivers is in most cases also stipulated in national regulations. In Germany, for example, a probationary driving licence is generally issued for a period of two years¹⁸; this period may be extended to four years, however, if certain traffic offences are committed.

Table 2 on the following page presents the minimum ages for access to the supervised learning phase, for transition to the autonomous learning phase and for the issuing of a driving licence free of all protective regulations in the countries covered by the project. It similarly specifies the minimum age at which the knowledge and driving tests can be taken. In this context, it must be noted that, especially in the GDL countries, but also in a number of European countries, the learners initially prepare independently for a knowledge test, which then serves as the prerequisite for issuing of a learner driving licence – in these countries, therefore, the novice drivers already begin to acquire traffic-related knowledge independently before the legally stipulated earliest time for the issuing of a learner driving licence. The table reveals furthermore that different minimum ages may apply within a single country (e.g. in Austria, Estonia, France, Luxembourg, Slovenia and Germany). In the same way that novice drivers in Germany can choose between participation in the “BF17” model and exclusively formal driver training with a professional driving instructor, different training models are offered similarly in other countries. If these options are associated with different minimum age requirements, this is noted accordingly in the table. The contents of such options and different training models within the individual systems of novice driver preparation are described in more detail elsewhere (see Chapter 3.2 and Annex).

It can also be seen from Table 2 that, among the major West European countries (“WEU” group), only Germany and France provide for commencement of the supervised learning phase before the age of 17 years – insofar as the novice drivers here select the training model with accompanied driving.

¹⁸ A zero-alcohol rule applies not only during the two-year “probationary period”, but also thereafter, where appropriate, until the driver reaches the age of 21 years.

Country	Group	Minimum age requirement (in years) for ...				
		... start of supervised learning phase	... completion of knowledge test	... completion of driving test	... start of autonomous learning phase	... licence without special protective regulations
D	WEU	16;6 or 17;6	16;9 or 17;9	16;11 or 17;11	18	21 ¹
E	WEU	17	18	18	18	21
GB	WEU	17	17	17	17	19
I	WEU	18	18	18	18	21
F	WEU/NBR	16 or 17;6	16 or 17;6	18	18	20 or 21
B	NBR	17	17	18 or 18;3	18	20 or 20;3
CH	NBR	17;10	17;11	18	18	21
CZ	NBR	16;6	18	18	-	18
DK	NBR	17;6	17;11	18	18	21
L	NBR	17 or 17;6	17 or 17;6	17;6	18	20
PL	NBR	17;9	18	18	18	19
A	NBR/REF	16 or 17;6	17 or 18	17 or 18	17 or 18	20
NL	NBR/REF	18	18	18	18	23
FIN	REF	17;6	18	18	18	19;6 - ² 20
N	REF	16	17;6	18	18	20
S	REF	16	18	18	18	20
BG	-	17; 9	17;11	18	-	18
CY	-	17;6	18	18	-	18
EST	-	15;6 or 17;6	16 17;6 or 17;6	16 17;9 or 17;9	18	20
GR	-	18	18	18	18	20
H	-	16;6	16;9	17	17	19
HR	-	17;6	17;6	18	18	20
IL	-	16;6	16;6	17	17;3	19
IRL	-	17	17	17;6	-	17;6
IS	-	16	16;10	17	17	18 - ³ 20
LT	-	17	18	18	18	20
LV	-	16	18	18	18	20
M	-	18	18	18	18	21
P	-	17;6	18	18	18	21
RO	-	17;9	18	18	18	19
RUS	-	16	18	18		
SK	-	17	18	18	18	20
SLO	-	16;6 or 17;6	18	18	18	21
TR	-	18	18	18		
AUS/NSW	GDL	16	16	17	17	20
AUS/QLD	GDL	16	16	17	17	20
AUS/VIC	GDL	16	16	18	18	22
CDN/NS	GDL	16	16	16;3	16;3	18;3
CDN/ON	GDL	16	16	16;8 ⁴ 17;8	16;8	17;8
CDN/QC	GDL	16	16;10	17	17	19
NZ	GDL	15	15	15;6 ⁵ 16;6 - 17	15;6	16;6 -17 ⁶
USA/CA	GDL	15;6	15;6	16	16	18
USA/FL	GDL	14;6	15	16	16	18
USA/NC	GDL	14;6	15	16	16	18

Tab. 2: Minimum age requirements ("-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries; ages specified in years and months, e.g. 17;6 = 17 years and 6 months; where several minimum ages are specified in one cell, this indicates the availability of optional training models ("or"), or else the requirement to pass two tests ("|") during the course of novice driver preparation)

Additional remarks:

¹ Absolute zero alcohol rule up to 21 years; ² Driving licence without special protective regulations after attending an advanced training course; ³ Driving licence without special protective regulations after an "evaluation driving session"; ⁴ First driving test at the earliest at 16 years and 8 months, and a second at 17 years and 8 months; ⁵ First driving test at the earliest at 15 years and 6 months, and a second at 16 years and 6 months; ⁶ Shortening of the autonomous learning phase possible

There are likewise only a few countries in the groups of the neighbouring countries around Germany ("NBR" group) and the reform-oriented countries ("REF" group) in which it is possible to commence the supervised learning phase at such an early age, namely in the Czech Republic, Austria (in case of participation in the "L17" training model), Norway and Sweden. In the Czech Republic, enrolment at a commercial driving school is the only way to acquire driving skills before commencing solo driving at the earliest from the age of 18 years. It is here not possible to use the relatively long supervised learning phase to build up additional driving experience through accompanied driving. In the group of GDL countries ("GDL" group), the age threshold is particularly low at 16 years or even less: In North Carolina, for example, it is already possible to attend a formal training course at the age of 14 years and 6 months. In New Zealand, the supervised learning phase can already commence at the age of 15 years. The entry prerequisite is a knowledge test which, if passed, entitles the candidate to learn to drive in public traffic under the supervision of either a lay person or a professional driving instructor; the required knowledge test in New Zealand is thus preceded by a phase of independent preparation.

Viewed across all countries, the highest minimum age requirements for the supervised learning phase apply in the European countries Greece, Italy, Malta, the Netherlands and Turkey; in these countries, the statutory minimum age for the commencement of practical driving instruction is 18 years.

The fourth column of Table 2 shows the national minimum age requirements applicable for the commencement of solo driving (i.e. for transition to the autonomous learning phase) in the various countries. In the majority of the European countries, the prescribed minimum age is 18 years. Among the major West European countries, the neighbouring countries around Germany and the reform-oriented countries, an earlier commencement of solo driving, namely at the age of 17 years, is only possible in Great Britain and in Austria (in case of participation in the "L17" training model). In the overseas GDL countries considered by the project, on the other hand, the minimum ages for transition to the autonomous learning phase are predominantly lower (e.g. 16 years in California, North Carolina and Florida). The lowest minimum age for the autonomous learning phase applies in New Zealand: After a supervised learning phase of at least six months under the supervision of an experienced adult driver, novice drivers can proceed to solo driving under special protec-

tive regulations at the earliest at an age of 15 years and 6 months.¹⁹

In those countries for which no minimum age requirement for commencement of the autonomous learning phase is specified in the table (Bulgaria, Ireland, Czech Republic, Cyprus), a driving licence free of all restrictions is issued directly after successful completion of the driving test. The novice drivers in these countries are thus not subject to protective regulations in the sense of a special autonomous learning phase after commencing solo driving.

All the countries covered by the project stipulate that a knowledge test and a driving test must be passed in the course of novice driver preparation; This requirement to demonstrate adequate traffic-related knowledge and practical driving ability is thus an internationally common feature.²⁰ In the national systems of novice driver preparation, admission to the knowledge and driving tests is always subject to a certain minimum age. The prescribed minimum age may be the same for both tests in some cases, but all the considered systems require that a knowledge test be passed before it is possible to take a driving test.

The minimum age for transition to the autonomous learning phase – usually after successful completion of the driving test – is predominantly 18 years. The driving test can nevertheless be taken already a few weeks before the driver's actual 18th birthday in a few countries, (see Table 2). In connection with the German "BF17" model, for example, novice drivers may already take the driving test up to one year before they reach the age of 18 years. With this earlier driving test, they already acquire the status of legally responsible driver of their vehicle. The autonomous learning phase, in which they are permitted to drive without an experienced accompanist, however, only commences after their 18th birthday.

¹⁹ It is to be noted that the regulations and stipulations within a particular country may vary according to age group. In the GDL systems, in particular, longer minimum periods and stricter protective regulations apply with regard to the autonomous learning phase for youth drivers and young adults, whereas less strict regulations apply for those who only commence driver training at an adult age. In the Australian state of Queensland, for example, the duration of the autonomous learning phase is dependent on the age at which novice driver preparation begins. Shorter periods apply for novice drivers who are older than 23 years. The present report, however, considers the conditions and measures applicable to young novice drivers in each case.

²⁰ In some countries, further forms of testing exist alongside the knowledge and driving tests mentioned here.

In a number of other countries, too, a passed driving test does not immediately constitute an entitlement to drive solo: In Israel, for example, the test is followed initially by a three-month period, in which driving is permitted exclusively with an accompanist. Novice drivers may only commence solo driving after these three months (at the earliest at the age of 17 years and 3 months). In Estonia, a (shortened) driving test can already be taken from the age of 16 years, but only entitles the novice to drive with an accompanist; solo driving is only permitted after reaching the age of 18 years (and after passing the regular driving test).

In most of the countries covered by the project, the knowledge and driving tests are the only tests prescribed by the national system of novice driver preparation. In a few countries, however, further forms of testing are stipulated in addition, or else a knowledge or driving test must be taken more than once within the framework of novice driver preparation. In the group of GDL countries, for example, two driving tests are required in New Zealand and in the Canadian province of Ontario: The first of these driving tests marks the transition to the autonomous learning phase, while the second is prerequisite for the issuing of a driving licence which is no longer subject to special protective regulations. A more detailed analysis of the forms of testing implemented in the different countries is to be found in Chapter 3.3 and in the “country profiles” in the annex to this report.

3.1.2 Duration and costs of novice driver preparation

Alongside the legally stipulated minimum age requirements for commencement of the supervised learning phase and for admission to the prescribed tests, the overall duration of novice driver preparation is an important feature by which to distinguish the individual systems.

In the majority of the countries considered by the project, the process of novice driver preparation through to granting of a driving licence without protective restrictions comprises a supervised learning phase before the commencement of solo driving, and a subsequent autonomous learning phase which is typically subject to protective regulations for novice drivers. Whereas the period of the applicability of special regulations during the autonomous learning phase is always specified in the relevant legislation, and is thus binding for all novice drivers, the duration of the supervised learning phase is often only stipulated indirectly in the statutory instruments. Consequently, several

factors may influence the duration of the supervised learning phase, such as the prescribed minimum number of hours of formal driver training, the time required by the individual novice driver to acquire the necessary driving skills, and the availability of financial means for additional driving lessons. It is thus not generally possible to derive data on the actual duration of the supervised learning phase from the legal framework alone; it is rather necessary to evaluate corresponding empirical surveys and expert opinions as additional sources of information.

There are nevertheless some national systems of novice driver preparation with clear stipulations on the duration of the supervised learning phase. Mention can be made above all of the GDL systems in North America and Australia/Oceania, which include provisions for a minimum duration of several months.

Table 3 below shows the duration of the supervised learning phase in the different countries. Information gathered on the basis of estimation by experts is marked by a preceding tilde (“~”); the prescribed duration of the autonomous learning phase subject to special novice driver regulations is also specified. The final column of the table indicates the costs which, according to the estimates gathered from experts, are incurred by the individual applicant to obtain a driving licence.²¹ For an international comparison, however, certain limitations must be acknowledged when interpreting these costs: Firstly, the figures here do not identify the proportions of the total costs attributable to particular forms of teaching/learning and testing, and secondly, the different economic circumstances in the individual countries must be taken into account. An analysis at such a level of detail, however, was not feasible within the framework of the current project.

It can be seen from the table that no particular duration is specified for the supervised learning phase in most of the major West European countries, in the neighbouring countries around Germany and in the reform-oriented countries (or else no precise data is available on the estimated or prescribed duration).

²¹ The financial costs influence the individual course of novice driver preparation (e.g. the intensity of test preparation depends on the costs arising for the novice driver; STURZBECHER, GROßMANN, HERMANN, SCHELLHAS, VIREECK & VÖLKEL, 2004).

Country	Group	Duration of ...		Total costs (in Euros)
		... supervised learning phase (in months)	... autonomous learning phase (in months)	
D	WEU	~1.5-3 or ~8.5-11 ¹	12 ² -24 (36-48) ³	~1500
E	WEU		36	~900
GB	WEU	~8	24	~1650
I	WEU		36	
F	WEU/NBR	~6 or min. 12 ⁴	36 or 24	~1200
B	NBR	~ less than 12 or ~20	24	~200-300
CH	NBR		36	~1900-3200
CZ	NBR	~2	-	~250-320
DK	NBR	Min. 0.5	36	~1600-1900
L	NBR	~4 or ~12	24	~ Min. 1000
PL	NBR		12	~400
A	NBR/REF	~2 or ~6	24 ⁵	~1500
NL	NBR/REF	~6	60	~1800
FIN	REF		18-24	~1500
N	REF	~6	24	~1800-2400
S	REF	~3-24	24	~1350
BG	-	Min. 0.7	-	~ 250
CY	-		-	
EST	-	Min. 1.5	24	~600-760
GR	-		24	~700-900
H	-	~2	24	~440
HR	-	~3-6	24	~900-1000
IL	-		21	
IRL	-	Min. 6	-	
IS	-	~6-8	12-36	
LT	-		24	~435
LV	-	~1.5 ⁶	24	~500-560
M	-		36	~230
P	-		36	~750
RO	-	Min. 1	12	
RUS	-			
SK	-		24	~400-800
SLO	-		24	~600-1000
TR	-			
AUS/NSW	GDL	~15 ⁷	36-48	
AUS/QLD	GDL	Min. 12	36	
AUS/VIC	GDL	~12-18	48	~570
CDN/NS	GDL	Min. 3-6	24	
CDN/ON	GDL	Min. 8-12	8-12	~370
CDN/QC	GDL	Min. 12	24	~590
NZ	GDL	Min. 6	12-18	~230
USA/CA	GDL	Min. 6	12 ⁸	
USA/FL	GDL	Min. 12	24 ⁹	
USA/NC	GDL	Min. 12	6-24	

Tab. 3: Duration and estimated total costs of novice driver preparation (“-” = not applicable; grey cells = no information available; “~” = expert estimation; “Min.” = prescribed minimum duration; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries; “or” = availability of optional training models for which different durations are prescribed for the supervised learning phase)

Additional remarks:

¹ Under the “BF17” model; ² Driving test taken at 17 years under the “BF17” model; ³ In case of extension of the probationary period; ⁴ Under the “AAC” model; ⁵ Under the “L17” model, the probationary period always lasts until the age of 20 years, i.e. possibly longer than 24 months. ⁶ Minimum duration of driving school training is 5 weeks. ⁷ Minimum duration of 12 and maximum duration of 36 months. ⁸ 12 months or until reaching the age of 18 years; ⁹ 24 months or until reaching the age of 18 years

The longest prescribed minimum duration for the supervised learning phase among the European countries, namely 12 months, is to be found in France, where it refers to participation in the accompanied driving scheme. By contrast, a binding minimum duration is specified in all the GDL countries for the supervised learning phase, which is also comparatively long in the Australian states of New South Wales, Queensland and Victoria, in the US states of Florida and North Carolina and in the Canadian province of Québec at 12 months. In New South Wales, a minimum duration of 12 months and a maximum duration of 36 months is specified for the supervised learning phase; the estimates from experts indicate an average duration of 15 months.

A minimum duration may also be stipulated for the supervised learning phase in countries in which it is only permitted to learn to drive with a professional driving instructor. In such cases, however, this serves not to support longer-term experience-building, but rather to specify the distribution of theoretical and practical teaching units within the framework of the formal driver training. In Denmark, for example, driver training must be spread over at least two weeks, and in Bulgaria over at least 22 days. In Romania, at least four weeks must lie between the start of driver training and the driving test.

The period for which protective regulations apply during the autonomous learning phase varies between 12 and 48 months in the major West European countries. In Germany, the duration depends on the chosen model of novice driver preparation and on any traffic offences committed during the relevant period. All novice drivers are initially subject to special regulations for a two-year probationary period after acquiring their first driving licence for a vehicle of class A1, A, B or B/E. This period may be extended to four years if traffic offences of a certain severity are recorded. For participants in the "BF17" model, however, this probationary period begins together with the phase of accompanied driving, which means that the autonomous learning phase subject to protective regulations for novice drivers may be reduced from 24 months to a minimum of 12 months or – in case of extension of the probationary period – from 48 months to a minimum of 36 months. An autonomous learning phase during which the novice driver is only permitted to drive on the basis of special protective regulations is also to be found in most of the neighbouring countries around Germany. In Poland, this period lasts only 12 months, and in the Czech Republic there is no such period. Among the reform-oriented countries, the Netherlands

earns particular mention with a duration of five years. In Finland, the 24-month duration of the autonomous learning phase can be shortened by up to six months through early participation in a mandatory advanced training course ("second phase of driver training"). In most GDL countries, too, the duration of the autonomous learning phase lies between 24 and 36 months, with the longest duration being prescribed in the Australian state of Victoria with 48 months. Shorter periods are found in California and in the Canadian province of Ontario, with 12 months each, and in New Zealand, with 18 months. In New Zealand and Ontario, it is furthermore possible to reduce this period to 12 or 8 months, respectively, by attending a formal training course in a driving school.

From the international overview, it remains to be noted that significant differences exist between the various countries – also within Europe – with regard to the duration of novice driver preparation and its individual phases (supervised and autonomous learning phases).

3.1.3 Proof of fitness to drive and knowledge of first aid

One prerequisite for safe participation in motorised road traffic is an adequate fitness to drive²². Relevant health impairments must be known to both the driving licence applicant and to the authorities responsible for the issuing of driving licences, and must be taken in account accordingly (e.g. by specifying that the person concerned is only permitted to drive a vehicle when wearing spectacles or contact lenses). Adequate vision, in particular, is imperative for all participants in motorised road traffic. It should furthermore be guaranteed that certain medical conditions which are likely to impair the ability to participate safely in traffic can be excluded. Significant differences exist between the individual countries with regard to the scope of prerequisites to be demonstrated and the form in which proof is to be furnished. In some countries, the licence applicant's fitness to drive must be certified by an approved physician, whereas others rely on self-reports for the verification of health status.

²² Reference is here made not merely to aptitude in the psychological sense, but to the wider concept of fitness as used in driver licensing regulations (cf. BÖNNINGER & STURZBECHER, 2005); this includes driving licence applicants being required to display certain physical and mental capabilities.

Country	Group	Proof of fitness to drive				Knowledge of first aid	
		Eyesight test	Hearing test	Medical check	Self-report	Mandatory course attendance	Course units
D	WEU	X	-	-	-	X	8 (45 minutes each)
E	WEU	X	X	X	-	-	-
GB	WEU	X	-	-	X	-	-
I	WEU	X	X	X	-	-	-
F	WEU/NBR	X	-	-	-	-	-
B	NBR	X	-	-	X	-	-
CH	NBR	X	-	-	X	X	10 (60 minutes each)
CZ	NBR	X	X	X	-	X ¹	6 (45 minutes each)
DK	NBR			X	-	X	7
L	NBR	X		X	-	-	-
PL	NBR	X	X	X	-		
A	NBR/REF	X	X	X	-	X	6
NL	NBR/REF	X	-	-	X	-	-
FIN	REF			X	-	-	-
N	REF	-	-	-	X	X ²	4 (45 minutes each)
S	REF	X	-	X	X	-	-
BG	-	X	X	X	-	X	
CY	-	X	-	-			
EST	-	X	X	X	-	X	16
GR	-	X	-	X	-	-	-
H	-	X	X	X	-	X	
HR	-	X		X	-	X ³	
IL	-	X		X	-	-	-
IRL	-	X	-	-	X	-	-
IS	-	-	-	-	X	-	-
LT	-	X	X	X	-		
LV	-	X	X	X	X	X	15
M	-	X		X	-	-	-
P	-					-	-
RO	-			X	-		
RUS	-						
SK	-	X	X	X	-		
SLO	-	X	X	X	-	X	10
TR	-						
AUS/NSW	GDL	X	-	-		-	-
AUS/QLD	GDL	X	-	-	X	-	-
AUS/VIC	GDL	X	-	-	X	-	-
CDN/NS	GDL	X	-	-	X	-	-
CDN/ON	GDL	X	-	-	X	-	-
CDN/QC	GDL	X	-	-	X	-	-
NZ	GDL	X	-	-		-	-
USA/CA	GDL	X	-	X	-	-	-
USA/FL	GDL	X	X	-	X	-	-
USA/NC	GDL	X	-	-		-	-

Tab. 4: Proof of fitness to drive and knowledge of first aid ("X" = applicable, "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

^{1, 2} The specified course units are elements of the training curriculum for formal driver training (see Chapter 3.2.5).

³ Knowledge of first aid measures is tested, but no information is available as to whether the relevant knowledge is acquired within the framework of the prescribed formal driving school training or through external measures.

The first columns in Table 4 indicate the areas in which examinations of fitness to drive are required (eyesight, hearing), and the form in which corresponding proof is to be provided (medical check, self-report). As can be seen from the table, most countries require novice drivers to take an eyesight test. It is furthermore evident that, in contrast to the GDL countries considered by the present project, most European countries demand that the fitness to drive be documented by way of a medical check.

Such medical checks address not only possible vision impairments, but in many cases also other areas of health-related fitness to drive. In Spain, for example, the medical checks supplement tests of eyesight and hearing with examinations to determine a variety of other ailments and conditions (e.g. diabetes, diseases of the nervous system, psychiatric disorders). Austria demands cardiovascular and neurological examinations, as well as the customary eyesight and hearing tests, and a test of the driving licence applicant's general physical mobility. In Romania, proof of the physical and mental fitness to drive must be furnished by way of a medical and a psychological certificate or report, and a psychological examination is likewise stipulated in Lithuania. In Greece, finally, the eyesight test is performed by an ophthalmologist, while overall medical fitness to drive is confirmed by a general practitioner.

In most GDL countries, but also in a number of European countries, evidence of medical fitness to drive is provided not in the form of a doctor's certificate, but instead by way of a self-report, in which the licence applicant is required to notify any physical or mental impairments; a medical check is usually only prescribed where the self-report gives reason to doubt the physical or mental fitness to drive (e.g. in the Australian state of Victoria). In Norway, the self-report also contains a statement on eyesight, whereas a separate eyesight test is required in Ireland alongside the general self-report. In Switzerland, too, an application for the issuing of a driving licence must be accompanied by a self-report with statements pertaining to physical ailments, vision and driving experience in other vehicle classes; driving licence applicants must also take an eyesight test.

In some countries, eyesight may be tested within the framework of the knowledge or driving tests. In Belgium and the Canadian province of Ontario, for example, proof of adequate vision must be furnished when taking the knowledge test. In France, Great Britain, the Netherlands and Cyprus, on the other hand, the driving licence applicant is required

to read a vehicle registration plate from a certain distance immediately before starting the driving test, and in this way to demonstrate adequate vision to the driving test examiner.

The second half of Table 4 is devoted to the national regulations relating to knowledge of first aid measures. In many European countries, completion of a first aid course is a prerequisite for the issuing of a driving licence. First aid courses are offered by private or state-run health service providers, and attendance is a mandatory requirement before commencing theory classes or practical driving instruction. In some countries, first aid courses also represent more or less extensive elements of the prescribed formal driving school training (e.g. in the Czech Republic). Appropriate behaviour in case of an accident and the administering of first aid to other road users are addressed in very different manners within the framework of novice driver preparation (e.g. in learning manuals, in tests at the end of the course or through corresponding questions during the knowledge test); this diversity cannot be presented in detail in the table.

If the specifications with regard to courses in first aid measures are considered from the perspective of the defined groups of countries of special interest, then it can be noted first that, among the major West European countries, course attendance is only mandatory in Germany. In the neighbouring countries around Germany and in the reform-oriented countries, a rather divergent situation is revealed. In the GDL countries, on the other hand, none of the systems prescribe attendance at a first aid course. There are nevertheless some GDL countries which confront novice drivers with immediate personal implications of the risk of being killed in road accident. In the US states of Florida, California and North Carolina, for example, the readiness to become an organ donor in case of a fatal road accident is queried when applying for a learner driving licence, and the licence applicant is given the opportunity to register as an organ donor.

In the Czech Republic and Norway, the courses specified in the table are elements of the prescribed formal training in a driving school. In the Czech Republic, for example, the training curriculum stipulates two course units for the theoretical treatment of first aid measures (within the framework of the theory classes) and four more units for corresponding practical exercises. In Norway, too, the curriculum includes a section "First aid", for which four course units are set aside within the framework of the theory classes.

In Bulgaria, Denmark, Germany, Estonia, Latvia, Austria, Slovenia, Hungary and Switzerland, it is required to attend a first aid course offered by an external provider (e.g. Red Cross) outside driving school training. In Switzerland, corresponding knowledge and skills are acquired within the framework of a first aid course comprising five sessions of 2 hours each; the topics covered relate to behaviour and first aid measures at the scene of an accident, for example securing the scene of the accident, alarming the emergency services and life-saving measures to maintain vital bodily functions until the arrival of medical aid (e.g. correct recovery position for injured persons, artificial respiration, measures in case of severe bleeding and the basics of cardiac massage). In Germany, a corresponding course in “Life-saving first aid measures” comprises four double units of 90 minutes each.

In Hungary and Croatia, first aid measures constitute a separate subject for testing. In Hungary, for example, the corresponding knowledge and skills are tested by the Hungarian Red Cross in a specific “first aid test” with theoretical and practical elements.

3.2 Teaching and learning forms in novice driver preparation

3.2.1 Overview

Different forms of teaching/learning and testing represent the “building blocks” or system components of systems of novice driver preparation. Classification according to principles of teaching/learning theory and the general description of typical components from the functional and institutional perspectives in Chapter 2.3.2 were the first steps towards a comparative analysis of the national systems of novice driver preparation in the present report. On this basis, as a second step, the forms of preparation in use in the different countries are to be described in more detail with regard to their country-specific legal and technical realisation and in respect of their combination and interaction.

The relevant teaching and learning forms were differentiated in Chapter 2.3.2 as those system elements which serve the acquisition of driving and traffic competence (for detailed analyses of the forms of testing, see Chapter 3.3); these teaching/learning forms include:

- Theory classes,
- Independent theory learning,

- Practical driving instruction,
- Driving simulation training,
- Accompanied driving,
- Advanced training courses, and
- Solo driving under protective regulations.

In addition, two broader forms of preparation for novice drivers were identified:

- Road safety education in schools (targeted to new and young drivers) and
- Road safety campaigns (targeted to new drivers).

Before a more detailed consideration of the country-specific implementations of these teaching and learning forms, as a means to determine differences and common features in the national systems, Table 5 (see following pages) presents a general overview. This table takes into account teaching/learning forms which are prescribed by legislation, used in preparation to an appreciable extent – also as optional teaching/learning forms – or otherwise integrated into the system in a significant manner (e.g. with incentives to encourage voluntary use).

With regard to the differentiation of formal and informal teaching and learning forms (see Chapter 2.2.4), it must be noted that the two complement each other in numerous ways. This applies, for example, to the generally available possibility to acquire traffic-related knowledge by way of independent theory learning (informal teaching/learning form) alongside theory classes in a driving school (formal teaching/learning form). Similarly, practical driving instruction with a professional driving instructor is in many countries merely one possible form of initial driving practice. It can often be complemented or even replaced by initial practical driving instruction under the supervision of an experienced lay person (“lay training”).

Country	Group	Theory classes	Independ. theory learning	Practical instruction	Driving simulation	Accompanied driving	Advanced training courses	Protected solo driving	Principal features
D	WEU	X (mand.)	X (opt.)	X (mand.)	-	-	X (opt.), I* (mand.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • exclusively prof. driver training for DL application from 18 yrs. • extended driving practice only possible through participation in BF17 model (after mand. driving school training) • Autonomous learning phase: • protective regulations for 24 mos. (or until 21 yrs.) • mand. improvement course after traffic offences • opt. course offers
D "BF17" ¹		X (mand.)	X (opt.)	X (mand.)	-	X (opt.)	X (opt.), I* (mand.)	X (mand.)	
E	WEU	X (opt.)		(opt.)		X (opt.)	X (opt.), I* (opt.)	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. training, lay training, ...) • formal driver training predominant, lay training rarely practised • Autonomous learning phase: • protective regulations for 36 mos. • opt. improvement course to reduce penalty points • further opt. course offers
GB	WEU	-	XX (opt.)	X (opt.)	-	X (opt.)	X (opt.), I* (opt.)	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • lay training usual alongside prof. instruction • independent theory learning predominant, theory classes not practised • opt. long form of practical preparation (without special accompanied driving model) • Autonomous learning phase: • protective regulations for 24 mos. • opt. advanced course ("Pass Plus") • opt. improvement course
I	WEU	X (opt.)		X (opt.)		X (opt.)	I* (opt.)	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. training, lay training, ...) • optional long form of practical preparation (learner DL for 6 mos.). • formal driver training predominant • Autonomous learning phase: • protective regulations for 36 mos. • opt. improvement course to reduce penalty points
F	WEU/NBR	X (opt.)	X (opt.)	X (opt.)	-	-	X (opt.), I* (mand.)	X (mand.)	Supervised learning phase: • compulsory participation in road safety education in school • free choice of teaching/learning forms (prof. training, lay training,...) • formal driver training predominant (theory + practice) • long forms of practical preparation possible for all learner drivers (lay training or accompanied driving models "AAC", "Conduite supervisée") • Autonomous learning phase: • protective regulations for 24 or 36 mos. • mand. improvement course after traffic offences • optional course offers
F "AAC" ²		X (opt.)	X (opt.)	X (mand.)	-	X (mand.)	X (opt.), I* (mand.)	X (mand.)	
B "36M"	NBR	X (opt.)	X (opt.)	X (opt.)	-	X (opt.)	X (opt.), I* (opt.)	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • optional long form of practical preparation under 36M model (learner DL for 3-36 mos.) • compulsory formal driver training (practical) only under 18M model (learner DL for 3-18 mos.) • Autonomous learning phase: • protective regulations for 24 mos. • opt. advanced course ("on-the-road" course) • opt. improvement course after traffic offences
B "18M"		X (opt.)	X (opt.)	X (mand.)	-	X (opt.)	X (opt.), I* (opt.)	X (mand.)	
CH	NBR	X (mand.)	X (opt.)	X (opt.)		X (opt.)	X (mand.), I* (opt.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory classes) • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • lay training widespread alongside prof. instruction • optional long form of practical preparation for all learner drivers (learner DL for 24 mos.) • Autonomous learning phase: • protective regulations for 36 mos. • mand. advanced course for all novice drivers • opt. improvement course
CZ	NBR	X (mand.)	X (opt.)	X (mand.)	X (opt.)	-			Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice, optional elements on driving simulator) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • no special regulations after issuing of driving licence
DK	NBR	X (mand.)	X (opt.)	X (mand.)		-	I* (mand.)	X (mand.)	Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 36 mos. • mand. improvement course after traffic offences
L	NBR	X (mand.)	X (opt.)	X (mand.)	-		X (mand.), I* (opt.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • exclusively prof. training for DL application from 18 yrs. • extended practical preparation before solo driving only under "CA" model (from 17 yrs., after formal driving school training) • Autonomous learning phase: • protective regulations for 24 mos. • mand. advanced course for all novice drivers • opt. improvement course after traffic offences
L "CA"		X (mand.)	X (opt.)	X (mand.)	-	X (opt.)	X (mand.), I* (opt.)	X (mand.)	

Country	Group	Theory classes	Independ. theory learning	Practical instruction	Driving simulation	Accompanied driving	Advanced training courses	Protected solo driving	Principal features
PL	NBR	X (mand.)	X (opt.)	X (mand.)		-	I* (opt.)	X (mand.)	Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 12 mos. • opt. improvement course after traffic offences
A	NBR/REF	X (mand.)	X (opt.)	X (mand.)	-		X (mand.), I* (mand.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • extended practical preparation possible (after mand. driving school training) under L17 model and with lay training (“dual training with practice driving”) • Autonomous learning phase: • protective regulations for 24 mos. • mand. advanced course for all novice drivers • mand. improvement course after traffic offences
A “L17”		X (mand.)	X (opt.)	X (mand.)	-	X (mand.)	X (mand.), I* (mand.)	X (mand.)	
NL	NBR/REF	X (opt.)	X (opt.)	X (opt.)	X (opt.)	-	I* (mand.)	X (mand.)	Supervised learning phase: • Practical instruction exclusively by prof. instructors ³ and with possibility for practice with driving simulator • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 60 mos. • mand. improvement course after traffic offences
FIN	REF	X (mand.)	X (opt.)	X (mand.)	X (opt.)	X (opt.)	X (mand.)	X (mand.)	Supervised learning phase: • Training in driving school or exclusively lay training; combination not permitted • formal driver training predominant (theory + practice) • partial use of driving simulator possible • Autonomous learning phase: • protective regulations for 18-24 mos. • mand. advanced course for all novice drivers
N	REF	X (mand.)	X (opt.)	X (mand.)	-	X (opt.)		X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • lay training and accompanied driving predominant alongside prof. practical instruction • Autonomous learning phase: • protective regulations for 24 mos.
S	REF	X (opt.)	X (opt.)	X (opt.)	-	X (opt.)		X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. training, lay training, ...) • lay training and accompanied driving widespread alongside prof. practical instruction • mand. safety course at end of supervised learning phase • Autonomous learning phase: • protective regulations for 24 mos.
BG	-	X (mand.)	X (opt.)	X (mand.)		-	I* (opt.)	-	Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • no special regulations after issuing of driving licence • opt. improvement course after traffic offences
CY	-	X (opt.)	X (opt.)	X (opt.)		X (opt.)	-	-	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • optional long form of practical preparation (without special accompanied driving model) • Autonomous learning phase: • no special regulations after issuing of driving licence
EST	-	X (mand.)	X (opt.)	X (mand.)		-	X (mand.)	X (mand.)	Supervised learning phase: mand. formal driving school training (theory + practice) • Optional lay training or accompanied driving after formal driving school training and after passing a special test • Autonomous learning phase: • protective regulations for 24 mos. • mand. advanced course for all novice drivers
EST		X (mand.)	X (opt.)	X (mand.)		X (opt.)	X (mand.)	X (mand.)	
GR	-	X (mand.)	X (opt.)	X (mand.)	-	-	-	X (mand.)	Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 24 mos.
H	-	X (mand.)	X (opt.)	X (mand.)	-	-	X (opt.), I* (mand.)	X (mand.)	Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 24 mos. • mand. improvement course after traffic offences • opt. course offers
HR	-	X (mand.)	X (opt.)	X (mand.)	-	-	-	X (mand.)	Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 24 mos.

Country	Group	Theory classes	Independ. theory learning	Practical instruction	Driving simulation	Accompanied driving	Advanced training courses	Protected solo driving	Principal features
IL	-	X (opt.)	X (opt.)	X (mand.)		X (mand.)		X (mand.)	Supervised learning phase: • mand. formal practical instruction • extended practical preparation in form of accompanied driving for all novice drivers (for minimum 3 mos. after obtaining DL) • Autonomous learning phase: • protective regulations for 21 mos.
IRL	-	X (opt.)	X (opt.)	X (mand.)		X (opt.)		-	Supervised learning phase: • mand. prof. training (practical instruction) • lay training and accompanied driving predominant alongside prof. practical instruction • optional long form of practical preparation for all (learner DL for 6-24 mos.) • Autonomous learning phase: • no special regulations after issuing of driving licence
IS	-	X (mand.)	X (opt.)	X (mand.)	-	X (opt.)	X (opt.), I* (mand.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • optional extended practical preparation for all learner drivers (after start of formal driving school training) • Autonomous learning phase: • protective regulations for 12-36 mos. • mand. advanced course after traffic offences • opt. course offers
LT	-	X (mand.)	X (opt.)	X (mand.)	-	X (opt.)	I* (mand.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • optional extended practical preparation for all novice drivers (after completion of formal driving school training) • Autonomous learning phase: • protective regulations for 24 mos. • mand. improvement course after traffic offences
LV	-	X (mand.)	X (opt.)	X (mand.)	-	X (opt.)	I* (opt.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • lay training und accompanied driving possible alongside prof. practical instruction • optional extended practical preparation for all novice drivers • Autonomous learning phase: • protective regulations for 24 mos. • opt. improvement course after traffic offences
M	-	X (opt.)	X (opt.)	X (opt.)		X (opt.)		X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • optional long form of practical preparation (without special accompanied driving model) • Autonomous learning phase: • protective regulations for 36 mos.
P	-	X (mand.)		X (mand.)		-	I* (opt.)	X (mand.)	Supervised learning phase: • exclusively mand. formal driving school training permitted (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 36 mos. • opt. improvement course after traffic offences
RO	-	X (mand.)	X (opt.)	X (mand.)		-		(mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 12 mos.
RUS	-	X (opt.)		X (opt.)		X (opt.)	X		Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • optional long form of practical preparation (without special accompanied driving model) • Autonomous learning phase: no information
SK	-	X (mand.)	X (opt.)	X (mand.)	X (opt.)	-	I* (mand.)	X (mand.)	Supervised learning phase: • exclusively mand. formal driving school training (theory + practice, optionally with driving simulator) • no extended practical preparation possible (lay training, accompanied driving) • Autonomous learning phase: • protective regulations for 24 mos. • mand. improvement course after traffic offences
SLO	-	X (mand.)	X (opt.)	X (mand.)		-	X (mand.), I* (mand.)	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • optional extended practical preparation for all novice drivers (after 20 hrs formal driving school training) • Autonomous learning phase: • protective regulations for 24 mos. • mand. advanced course for all novice drivers • mand. improvement course after traffic offences
SLO		X (mand.)	X (opt.)	X (mand.)		X (opt.)	X (mand.), I* (mand.)	X (mand.)	
TR	-								
AUS/NSW	GDL	X (opt.)	X (opt.)	X (opt.)	-	X (mand.)	-	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • long form of practical preparation for all novice drivers (min. 120 hrs, min. 12 mos.) • Autonomous learning phase: • graduated protective regulations for 36-48 mos.

Country	Group	Theory classes	Independ. theory learning	Practical instruction	Driving simulation	Accompanied driving	Advanced training courses	Protected solo driving	Principal features
AUS/QLD	GDL	X (opt.)	X (opt.)	X (opt.)		X (mand.)		X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. training, lay training, ...) • long form of practical preparation for all novice drivers (min. 100 hrs, min. 12 mos.) • reduced minimum hours of driving practice with prof. practical instruction • Autonomous learning phase: • graduated protective regulations for 36 mos.
AUS/VIC	GDL	X (opt.)	X (opt.)	X (opt.)	-	X (mand.)	X (opt.), I* (mand.)	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • long form of practical preparation for all novice drivers (min. 120 hrs, min. 12 mos.) • Autonomous learning phase: • graduated protective regulations for 48 mos. • mand. improvement course after traffic offences • opt. course offers
CDN/NS	GDL	X (mand.)	X (opt.)	X (mand.)		X (mand.)	I*	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • lay training and accompanied driving possible alongside prof. training • long form of practical preparation for all novice drivers (min. 6 mos.) ⁴ • Autonomous learning phase: • protective regulations for 24 mos. • impr. course after traffic offences
CDN/ON	GDL	X (opt.)	X (opt.)	X (opt.)	X (opt.)	X (mand.)	-	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • long form of practical preparation for all novice drivers (min. 12 mos.) • supervised learning phase shortened to 8 mos. in case of prof. training • Autonomous learning phase: • protective regulations for 12 mos.
CDN/QC	GDL	X (mand.)	X (opt.)	X (mand.)	-	X (mand.)	I*	X (mand.)	Supervised learning phase: • mand. formal driving school training (theory + practice) • lay training and accompanied driving alongside prof. practical instruction • long form of practical preparation for all novice drivers (min. 12 mos.) • Autonomous learning phase: • protective regulations for 24 mos. • impr. course after traffic offences
NZ	GDL	X (opt.)	X (opt.)	X (opt.)		X (mand.)	X (opt.)	X (mand.)	Supervised learning phase: • free choice of teaching/learning forms (prof. practical instruction, lay training, ...) • long form of practical preparation for all novice drivers (learner DL for min. 6 mos.) • Autonomous learning phase: • protect. regulations for 18 mos. • opt. course offers (autonomous learning phase shortened to 12 mos.)
USA/CA	GDL	X (mand.)	X (opt.)	X (mand.)		X (mand.)	I*	X (mand.)	Supervised learning phase: • mand. formal driving training (theory + practice) in school or driving school • long form of practical preparation for all novice drivers (min. 50 hrs, min. 6 mos.) • Autonomous learning phase: • protective regulations for 12 mos. or until 18 yrs • improvement course after traffic offences
USA/FL	GDL	X (mand.)	X (mand.)	X (opt.)		X (mand.)	I* (mand.)	X (mand.)	Supervised learning phase: • mand. formal driving training (theory classes or independent theory learning at PC) • long form of practical preparation for all novice drivers (min. 50 hrs, min. 12 mos.) • Autonomous learning phase: • protective regulations for 24 mos. or until 18 yrs • mand. improvement course after traffic offences
USA/NC	GDL	X (mand.)	X (opt.)	X (mand.)		X (mand.)	I* (opt.)	X (mand.)	Supervised learning phase: • mand. formal driving training (theory + practice) in school or driving school • long form of practical preparation for all novice drivers (learner DL for min. 12 mos.) • Autonomous learning phase: • graduated protective regulations for 6-24 mos. • opt. improvement course after traffic offences

Tab. 5: Overview of teaching/learning forms ("I*" = improvement courses following traffic offences or other conspicuous driving behaviour; "DL" = driving licence; "yrs" = years; "mos." = months; "hrs" = hours; "X" = applicable, "-" = not applicable; grey cells = no information available; "(mand.)" = mandatory teaching/learning form; "(opt.)" = optional teaching/learning form; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Accompanied driving from age 17; ² "Apprentissage anticipé de la conduite" as a model for accompanied driving independent of age, commencing at the earliest at the age of 16 years and for a minimum duration of 12 months. A further form of accompanied driving ("Conduite supervisée") was introduced in 2010 for novice drivers over 18 years, who are permitted to drive under the supervision of an experienced lay person after passing the knowledge test and after completing 20 hours of professional practical driving instruction. A minimum duration of 3 months and a minimum of 1,000 kilometres of driving are prescribed, and the novice driver must furthermore attend a "pedagogical meeting" with the driving instructor before and during the accompanied driving phase. ³ There is no legal regulation which explicitly prescribes driving school training, but it is not permitted to learn to drive under the supervision of a lay person; ⁴ Two options are available for the mandatory driver training during the supervised learning phase: The learner driver can choose to attend a "Defensive Driving Course" (6 hours) or a "Driver Training Course" (25 hours of theory classes and 10 hours of practical driving instruction). The latter leads to a shortening of the supervised learning phase by 3 months.

Whereas comprehensive specifications exist to define the contents, methods and scope of training to be covered by formal teaching and learning within the framework of (mandatory) professional driving school training, the informal teaching/learning forms are especially characterised by the freedoms granted with regard to their implementation. It is nevertheless shown that minimum requirements as to duration or extent of driving practice may also apply for informal teaching and learning forms such as accompanied driving, which thereby acquire a more distinctly binding character; the same applies, in principle, to solo driving under protective regulations, insofar as this informal teaching/learning form is governed by legal stipulations regarding the term of applicability and the scope of protective measures. Table 5 indicates whether a particular teaching/learning form is a mandatory or optional component of the system of novice driver preparation concerned. It also identifies the countries in which novice drivers can choose between different training models (e.g. Belgium, Germany, France, Luxembourg, Austria), and the teaching/learning forms which characterise the alternative models. The teaching/learning forms “Road safety education in schools” and “Road safety campaigns”, as broader forms of intervention, were only evaluated for a few, exemplary countries within the framework of the present project. They are not included in the table above; a number of examples are presented in Chapters 3.2.10 and 3.2.11, however, to illustrate their function as characteristic elements of preparation.

Table 5 provides merely a comparative overview – detailed country-specific system descriptions (“country profiles”), which address not only the framework conditions and the forms of teaching/learning and testing implemented in novice driver preparation, but also corresponding quality assurance measures, are to be found in the annex to this report. The first part of Table 5 shows the teaching and learning forms which are in use in the individual countries, and specifies whether they are mandatory or optional elements of the system. The second part describes for each country the combination and arrangement of the teaching/learning forms, and their assignments to the supervised and autonomous learning phases. This serves to outline the central task definitions or “principal features” of the systems, by listing relevant structural aspects, such as graduated access to full driving entitlements and the duration of driving competence acquisition (short vs. long form), as well as content-related learning objectives (acquisition of basic driving competence and expertise, changed attitudes to driving) and regulative provi-

sions (free choice of teaching/learning forms, formal and informal teaching/learning forms, protective regulations).

It can be seen from the table that, in the group of major West European countries, both professional driving instructors and private individuals/lay persons are involved in novice driver preparation. It is only in Germany that practical driving instruction must be entrusted exclusively to professional instructors (training monopoly of commercial driving schools). In practice, however, it is also very rare for practical instruction to be given by a lay person in Spain and France, as such instruction is only permitted in vehicles which – like driving school vehicles – are equipped with dual controls. In the group of reform-oriented countries, the Netherlands is the only country in which exclusively professional driving instructors are permitted to give practical driving instruction. In Finland, Sweden and Norway, instruction can also be given by lay instructors, either supplementary to professional practical instruction or – in Sweden and Finland – as the sole form of instruction. With increasing driving practice, lay instruction gradually gains the character of accompanied driving, in which the prime aspect is no longer instruction for the learner driver, but rather supervisory accompaniment. In Austria, accompanied driving is only permitted after completing professional driver training – a situation comparable to the optional training model in Germany and to customary practice in France. Three of the nine neighbouring countries around Germany (Denmark, Poland and the Czech Republic) limit driving practice before the transition to solo driving to professional driving school training. In the remaining countries in this group, on the other hand, lay persons may also be involved in the preparation for solo driving. In the GDL countries, practical driving instruction is given in part exclusively by lay trainers, and in part through a combination of lay training and professional driving school training. The Canadian province of Québec and the US states of California and North Carolina are the only members of this group in which practical driving instruction given by a professional driving instructor is prescribed for all novice drivers. The basic driver training is followed by an extended period of practical driving experience in the form of accompanied driving, with a variety of framework conditions serving to promote experience-building (e.g. the specification of a minimum duration of several months).

In a number of countries, formal driver training measures (advanced courses) are also offered after the commencement of solo driving, but are only rarely prescribed for all novice drivers. Disre-

garding “improvement seminars” for novice drivers who have displayed conspicuous driving behaviour, which are relevant only for a small proportion of the novice driver population, advanced course attendance is not compulsory in any of the major West European or GDL countries. In the reform-oriented countries, advanced courses are only mandatory for all novice drivers in Finland. Among the nine neighbouring countries around Germany, only Luxembourg, Austria and Switzerland require all novice drivers to attend an advanced training course.

With regard to the availability of teaching and learning forms, there are various differences between the national systems: In certain European countries, for example, the preparation for solo driving is limited to theoretical and practical training in a commercial driving school. This driving school training is furthermore mandatory, and the integration of lay training is not permitted (e.g. in Denmark, Poland, the Czech Republic and – for the majority of novice drivers not participating in the “BF17” model – Germany). In other countries, by contrast, permissible combinations of teaching and learning forms offer a choice of alternative training models to novice drivers – or at least certain groups of novice drivers in the case of age-specific models such as the “BF17” model in Germany. Under these models, the acquisition of initial competence within the framework of mandatory driving school training is followed by an extended period of practical driving experience with accompanied driving (e.g. in Germany, France, Luxembourg and Austria). A further possible combination provides for initial competence to be acquired essentially through independent theory learning and lay training, without a full course of driving school training; professional training elements are only used to the extent desired by the individual learner. With increased driving practice in the sense of practical driving instruction, this then acquires – as already mentioned above – the quality of accompanied driving (e.g. Sweden and Great Britain).

In a few European countries, the driver licensing systems are founded on the principle that an adequate level of preparation for solo driving is demonstrated by the novice driver attaining a specified test standard; consequently, no or only very general specifications are made regarding acquisition of the necessary knowledge and skills (with reference to content, methods, teaching/learning forms or duration). In these systems, the attendance at formal training measures is not prescribed (e.g. Great Britain, Malta, Cyprus). In the GDL countries, the framework conditions of novice driver preparation support longer-term practical driving

experience by way of accompanied driving. Minimum requirements are stipulated for the duration of the supervised learning phase and for driving experience under protective regulations after commencing solo driving. Both the acquisition of initial competence and the longer-term building of driving experience are based to a major extent on the support of non-professional accompanists (e.g. parents, relatives). The use of formal training offers is prescribed in some GDL systems (e.g. Québec). It is also encouraged by way of different forms of incentives for participation (e.g. shortening of the supervised or autonomous learning phase, as in Ontario).

In the following chapters, the teaching and learning forms outlined in the above overview are described in more detail in respect of their country-specific implementation.

3.2.2 Theory classes

In the present report, the teaching/learning form “Theory classes” refers to situations in which a professional instructor conveys driving- and traffic-related knowledge (e.g. legal foundations, traffic regulations, hazard avoidance) to learner drivers as a foundation for the acquisition of elaborated driving competence (see Chapter 2.3.2). Advanced systems of novice driver preparation with pedagogically demanding formal driving school training seek to establish a close interrelationship between theory classes and practical driving instruction, as a means to promote the translation of theoretical knowledge content into practically applicable action knowledge. The meshing of theory and practice is achieved through corresponding organisation of the training modules, which link relevant aspects of the theory classes and practical driving instruction in the sense of complex learning content and are anchored in a curriculum (see Chapter 3.2.5).

While theory classes are relatively easily distinguished from other teaching and learning forms in terms of their methodical approach (group-based learning under professional supervision), certain overlaps exist with regard to learning content: The acquisition of traffic-related knowledge does not necessarily require the pedagogical setting of a theory class, and could also be achieved – additionally or even exclusively – by independent theory learning (see Chapter 3.2.3). Both teaching/learning forms are often based on the same teaching/learning media (e.g. textbooks, videos) with the same content. It thus seems appropriate to consider the question of the special learning

potential by which theory classes justify their prominent position in many systems of novice driver preparation.

Answers to this question often refer to the particular suitability of this teaching/learning form for the communication of safety-oriented attitudes. At the latest in the 1970s, when the disproportionately high accident involvement of young novice drivers became a subject of scientific studies, the topic of “novice risk” was adapted to address the aspect of “youth risk” (SCHLAG, ELLINGHAUS & STEINBRECHER, 1986) in the context of novice driver preparation. On the basis of concepts known from personality and cognitive psychology (“sensation seeking”, ZUCKERMAN, 1979; “adolescent egocentrism”, ELKIND, 1967), it was assumed that, within the framework of their identity development, youths are characterised by a greater desire for constantly new sensations and experiences and for enhanced social status, and that this results in a greater disposition for physical and social risk-taking compared to adults, not least also in road traffic (ARNETT, 1992; ARNETT & BALLEJENSEN, 1993). This phenomenon was to be countered by attitude-building measures: The task of novice driver preparation was no longer seen solely in the communication of knowledge and skills, but also in the promotion of safety-oriented attitudes and values. Theory classes appeared particularly suitable as a means to achieve this objective, as they offer possibilities for discursive teaching forms (e.g. joint discussion of individual values, exchanges of experience). In Germany, such training objectives (e.g. readiness and ability to display considerate behaviour based on partnership, awareness of the significance of emotions when driving) were established with the introduction of the Learner Driver Training Ordinance (Fahrschüler-Ausbildungsordnung, FahrschAusbO) in 1976 and its amendment in 1998. The necessity for driver training to target more than the mere acquisition of driving skills, to take into account also values, norms and personal attitudes of the novice drivers and to influence these values and attitudes by way of suitable teaching/learning methods, was also emphasised as an important contribution to improvements in driver training in various EU projects (CHRIST et al. 1999; PFEIFFER et al., 2006; BARTL, 2010). It would seem, however, that the limitations of theory classes with regard to attainment of these objectives are yet to be described adequately; this point is to be taken up again later.

The content focus of theory classes and their integration with practical driving instruction are illustrated by examples from individual countries in

connection with the training curricula and teaching plans in Chapter 3.2.5. The following section “Mandatory attendance and duration” describes firstly for all countries, whether theory classes represent a mandatory or optional component of novice driver preparation, and the scope or duration of the corresponding course units, where prescribed. Subsequently, the section “Teaching/learning methods and teaching/learning media” indicates whether any particular focus is to be recognised in the methodical and media-related implementation in the individual countries, and the extent to which traditional forms of teaching (lecture-style presentation, textbooks) are combined with newer possibilities (e.g. “e-learning”).

Mandatory attendance and duration

It can be seen from Table 6 that, among the major West European countries, Germany is the only country in which it is a requirement to attend theory classes (total of 14 course units of 90 minutes each) within the framework of formal driving school training. In the other countries in this group, on the other hand, theory classes are not a mandatory teaching/learning form for novice drivers.^{23,24}

By contrast, theory classes are usually prescribed in the neighbouring countries around Germany and in the reform-oriented countries (it is only in Belgium, the Netherlands and Sweden that attendance is left to the choice of the novice driver).²⁵

²³ Attendance as such is not mandatory in Italy, but novice drivers who themselves decide to attend theory classes in a driving school must always complete a course comprising at least 20 units.

²⁴ In France, attendance at theory classes in a commercial driving school is not mandatory. When a novice driver commences driving school training (car, moped), however, he is required to document completion of a road safety course (Attestation scolaire de sécurité routière – ASSR). Corresponding courses and tests are an integral element of school education and are prescribed for various age groups. The individual courses are each completed with a test (see Section 3.2.10)

²⁵ In Finland, attendance (20 course units of 45 minutes each) is only mandatory for novice drivers who actually choose the option of professional driving school training. The required knowledge specified in the curriculum can also be conveyed exclusively in a private setting by a lay person (e.g. a parent); this possibility of exclusively lay training according to the specifications of a national curriculum is used by between approx. 10 and 20 per cent of the novice drivers.

Country	Group	Mandatory attendance	Minimum number of course units	Additional remarks
D	WEU	X	14 (90 minutes each)	12 double units (90 minutes each) on basic topics and 2 double units on supplementary topics specific to licence class B
E	WEU	-	-	-
GB	WEU	-	-	Voluntary classes possess only marginal significance
I	WEU	-	(20)	Minimum scope of 20 units in case of voluntary attendance
F	WEU/NBR	-	-	Typically approx. 10-15 course units in case of voluntary attendance
B	NBR	-	-	Optional classes offered in general schools
CH	NBR	X	8 (60 minutes each)	Mandatory "Road safety education" and optional "Basic theory" classes
CZ	NBR	X	36 (45 minutes each)	-
DK	NBR	X	28 (45 minutes each)	-
L	NBR	X	12 (60 minutes each)	-
PL	NBR	X	30 (45 minutes each)	-
A	NBR/REF	X	32 (50 minutes each)	26 units on basic topics and 6 units specifically for licence class B
NL	NBR/REF	-	-	Typically approx. 4 course units in case of voluntary attendance
FIN	REF	(X)	20 (45 minutes each)	Private learning (e.g. with parents) possible instead of driving school training
N	REF	X	24 (45 minutes each)	Course units spread over various stages of the curriculum (see Chapter 3.2.5)
S	REF	-	-	Typically approx. 11 course units in case of voluntary attendance
BG	-	X	40 (45 minutes each)	-
CY	-	-	-	-
EST	-	X	41 (45 minutes each)	-
GR	-	X	20 (45 minutes each)	-
H	-	X	28 (45 minutes each)	-
HR	-	X	30 (45 minutes each)	-
IL	-	-	-	-
IRL	-	-	-	-
IS	-	X	24 (45 minutes each)	-
LT	-	X	60 (45 minutes each)	Attendance not mandatory with certificate of secondary school education
LV	-	X	55 (45 minutes each)	Two additional voluntary units are usual as test preparation
M	-	-	-	-
P	-	X	28 (50 minutes each)	-
RO	-	X	24	-
RUS	-	-	-	-
SK	-	X	35 (45 minutes each)	-
SLO	-	X	40	Independent study possible for 20 per cent of content (= 8 course units)
TR	-	-	-	-
AUS/NSW	GDL	-	-	-
AUS/QLD	GDL	-	-	-
AUS/VIC	GDL	-	-	Theoretical elements during optional practical driving instruction
CDN/NS	GDL	X	25	"Driver Training Course" with additional practical instruction elements
CDN/ON	GDL	-	20 (60 minutes each)	Minimum scope of 20 units in case of voluntary attendance
CDN/QC	GDL	X	24 (55 minutes each)	-
NZ	GDL	-	-	-
USA/CA	GDL	X	30	Mandatory "Driver Education" only for novice drivers under 17;6 years
USA/FL	GDL	X	4	"DATA" or "TLSAE" (in a driving school or as online course)
USA/NC	GDL	X	30 (60 minutes each)	Mandatory "Driver Education" before issuing of learner driving licence

Tab. 6: Theory classes – Mandatory attendance and prescribed number of course units ("X" = applicable, "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

The prescribed minimum duration (translated into a number of hours) in the aforementioned groups of countries often exceeds 20 hours (Germany, Denmark, Austria, Poland, Czech Republic), but is also less in a number of cases (Finland, Luxembourg, Norway, Switzerland). Viewed across all countries in which attendance is mandatory, the longest minimum durations for the theory classes (in hours) are to be found in Latvia and Lithuania²⁶.

In the group of GDL countries, formal theory classes are not mandatory in the Australian states of Victoria, New South Wales and Queensland and in New Zealand. In the US states of California and North Carolina, on the other hand, completion of a driver training course ("Driver Education") with theoretical and practical elements is prescribed, while novice drivers in Florida must complete a course focusing on the dangers of alcohol and drugs in connection with road traffic ("Traffic Law and Substance Abuse Education - TLSAE" or "Drugs, Alcohol, Traffic, Awareness - DATA"); the driver is given the choice of attending classes in a driving school or else completing a corresponding online course from home.

In countries in which the attendance at theory classes is not mandatory, there are generally provisions for optional courses, which are then integrated into the system of novice driver preparation in various manners (e.g. to support preparation for the knowledge test or as "training packages" in conjunction with practical driving instruction). According to the information provided by experts, such voluntary classes are attended by practically all novice drivers in France and by approx. 90 per cent in Spain. In the Netherlands and Belgium, the corresponding figures are around 30 per cent and approx. 10 per cent, respectively. In Belgium, it is furthermore possible to attend optional theory classes with a scope of eight hours within the framework of general school education (see Chapter 3.2.10). In Great Britain, the optional theory classes possess only marginal significance, as they are attended by less than one per cent of the novice drivers. In Ontario, it is possible to attend a state-recognised training course in a driving school. The course design must here follow a binding training curriculum (see Chapter 3.2.5), in which (alongside practical driving instruction) at least 20 course units (of 60 minutes each) are to be devoted to theory classes. Such optional course

offers are taken up by approximately half of the novice drivers.

Teaching/learning methods and teaching/learning media

This section considers the teaching/learning methods and the teaching/learning media used in theory classes. The findings here are based on the information given by experts on the usual design of theory classes in the national systems and are summarised in Table 7. Corresponding data, however, were received from less than half of the countries covered by the report, and thus permit only limited comparison on the level of country groups. In the major West European countries, for example, it can be seen that the completion of test sheets is an integral element of theory classes in France, whereas this method is explicitly excluded as a teaching/learning form in Germany in accordance with § 5 FahrerschAusbO. Alongside the completion of test sheets, lecture-style presentations and class discussions are to be counted among the characteristic and most frequently used elements of theory classes in practically all countries. Discursive teaching/learning elements in which the novice drivers are able to contribute and discuss their own experiences are less common. The integration of external persons (e.g. police officers, accident victims) to confront novice drivers with the risks of participation in motorised road traffic by way of personal reports is a seldom used method.²⁷ Methods such as role play and work in small groups are relatively rare.

The data on teaching/learning media (see Table 7, right-hand half) show that, in most countries, the theory classes are based around textbooks, as a traditional teaching/learning medium, and that overhead projectors and slides are in frequent use. Traffic-related content is also visualised by way of real film sequences (e.g. in France, Luxembourg, Norway) or animations (e.g. in Germany, the Netherlands, Sweden). Internet-based computer learning programs, which would allow combinations of independent "e-learning" with face-to-face instruction in theory classes ("blended learning"), are apparently still seldom used.

²⁶ In Lithuania, attendance is only mandatory if no certificate of secondary school education can be presented. Otherwise, corresponding knowledge may also be acquired exclusively by way of independent theory learning. Overall, approx. 90 per cent of novice drivers attend theory classes.

²⁷ One such approach has been practised and evaluated in certain European countries for a number of years within the framework of the project "CLOSE-TO" (<http://www.close-to.net>; 1 September 2011). The confrontation with authentic accounts of road accidents is intended to lead to changes of attitude and to guarantee a lasting awareness for safe behaviour in road traffic.

Country	Group	Lecture presentation	Written/oral progress assessment	Class discussion	Experience reports by participants	Completion of test sheets	Demonstrations by the instructor	Work in small groups	Role play	Integration of external persons	Homework	Textbooks	Overhead/slide projector	Real videos	Virtual driving scenarios	Test sheets	Technical teaching models	Models of traffic and road infrastructure	Computer-based training	Internet-based training
D	WEU	X	X	X	X	-	X	-	-	-	-	X	X	X	X	-	X	X	X	-
E	WEU																			
GB	WEU																			
I	WEU																			
F	WEU/NBR	-	-	X	-	X	-	-	-	-	X	X	X	X	-	X	-	-	-	-
B	NBR	X	-	-	-	X	-	-	-	X	-	X	X	-	-	-	-	X	X	-
CH	NBR																			
CZ	NBR	X	-	X	-	X	-	-	-	-	X	X	X	-	-	-	X	-	-	-
DK	NBR																			
L	NBR	X	-	X	-	-	-	-	-	-	-	X	-	X	-	-	-	-	X	-
PL	NBR																			
A	NBR/REF	X	-	X	-	-	X	-	-	X	-	X	X	-	-	-	-	-	X	-
NL	NBR/REF	X	X	X	-	X	X	-	-	-	X	X	X	X	X	X	-	X	X	X
FIN	REF																			
N	REF	X	-	X	-	-	X	-	-	-	-	X	-	X	-	X	-	X	-	-
S	REF	X	X	X	-	X	X	X	-	X	X	X	X	X	X	X	-	-	-	X
BG	-																			
CY	-																			
EST	-																			
GR	-	-	-	-	-	X	X	-	-	-	X	X	-	-	-	X	-	-	X	-
H	-	X	-	X	-	X	X	X	-	-	-	X	X	-	-	-	-	X	X	-
HR	-	X	X	X	X	X	X	X	-	X	X	X	X	X	-	X	X	X	X	X
IL	-																			
IRL	-																			
IS	-	X	-	X	-	X	-	-	-	-	-	X	X	X	-	X	X	-	-	-
LT	-	X	X	X	-	X	X	-	-	-	-	-	X	X	X	X	X	X	X	-
LV	-	X	X	X	-	X	-	-	-	-	X	-	X	-	-	X	-	-	-	-
M	-																			
P	-																			
RO	-																			
RUS	-																			
SK	-	X	-	-	-	X	-	-	-	-	-	X	X	X	-	X	X	-	-	-
SLO	-																			
TR	-																			
AUS/NSW	GDL																			
AUS/QLD	GDL																			
AUS/VIC	GDL	-	-	X	-	-	X	-	-	-	-	X	-	-	-	-	-	-	-	-
CDN/NS	GDL																			
CDN/ON	GDL	X	X	X	-	X	-	X	-	-	X	X	X	X	-	X	-	X	-	-
CDN/QC	GDL	X	X	X	X	X	X	X	X	-	X	-	X	X	-	-	-	-	-	-
NZ	GDL																			
USA/CA	GDL																			
USA/FL	GDL																			
USA/NC	GDL																			

Tab. 7: Theory classes – Teaching/learning methods and use of teaching/learning media (“X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

In summary, it can be determined that theory classes are in many countries a widely used (and often mandatory) form of teaching and learning. For many countries, the information obtained from experts permits the conclusion that theory classes can be characterised by their preparation of novice drivers for the knowledge test, and by the use of traditional teaching/learning media (e.g. lecture-style presentations, textbooks).

3.2.3 Independent theory learning

In the present report, the teaching/learning form “Independent theory learning” is understood to refer to learning activities which are controlled primarily by the novice driver himself and do not require the immediate presence of a professional instructor. Structuring of the learning process is here achieved to a certain extent through the design of learning media (see Chapter 2.3.2). Appropriate textbooks are a frequently used teaching/learning media for independent theory learning. Computer learning programs permit interactive learning, while online-based learning offers integrate independent theory learning into group or class structures (e.g. in the form of “blended learning”, see above).

The following international comparison of independent theory learning serves to determine the importance attached to this teaching/learning form in the individual countries and the manner in which it is integrated into the organisational system of novice driver preparation, as well as to identify the principal forms of use and didactic design on the basis of the teaching/learning media which are made available to the novice driver. To this end, the following section initially considers the importance attached to independent theory learning as test preparation from the viewpoint of surveyed experts. Further aspects of its organisational integration and use are then to be presented by way of examples in the section “Teaching/learning media and learning methods”, alongside an overview of the principal forms in which independent theory learning is encountered.

Importance attached to independent theory learning

Even though novice drivers in all countries learn independently in order to obtain a driving licence, the importance attached to independent theory learning is by all means different from country to country. In those countries in which theory class attendance is prescribed or usual, this informal teaching/learning form serves above all to consoli-

date the knowledge gained from the classes. In other countries, by contrast, it represents the predominant or even exclusive form for the acquisition of (test-related) knowledge and here demands a higher degree of self-organised learning.

The survey among experts revealed that, in the group of major West European countries, equivalent importance is generally attached to independent theory learning and (prescribed or optional) theory classes as elements of test preparation for the knowledge test. Within this group of countries, independent theory learning predominates only in Great Britain, whereas, according to the information provided by the experts, the novice drivers in the other countries make use of theory classes and independent theory learning in approximately equal proportions in preparation for the knowledge test.

In the neighbouring countries around Germany and in the reform-oriented countries, too, the experts indicate that theory classes and independent theory learning are typically used to a comparable extent as teaching/learning forms. In Belgium, where it is necessary to pass a knowledge test in order to obtain a learner driving licence and attendance at a driving school is not prescribed, the novice drivers prepare for the test primarily by way of independent theory learning; the experts report that independent theory learning is also the main form of preparation for the knowledge test in Switzerland and Norway.

In many GDL countries, novice driver preparation begins with the knowledge test to obtain a learner driving licence. According to the replies received from experts, independent theory learning is here usually the predominant or sole form of learning chosen for test preparation. Independent theory learning and theory classes only play an equally important role in test preparation in the Canadian provinces of Ontario and Québec: In Québec, theory classes are mandatory, while more than half of all novice drivers make use of corresponding optional classes in Ontario.

Country	Group	Teaching/learning media from authorities/ test organisations			Teaching/learning media from commercial providers			Test items publicly accessible
		Textbooks/ manuals	CBT/ learning programs	Internet- based training	Textbooks/ manuals	CBT/ learning programs	Internet- based training	
D	WEU	-	-	X	X	X	X	X
E	WEU							-
GB	WEU	X	X	X	X	X	X	X
I	WEU							
F	WEU/NBR	-	-	-	X	X	X	-
B	NBR	-	-	-	X	X	X	-
CH	NBR	-	-	-	X	X	X	X
CZ	NBR	-	-	-	X	X	-	X
DK	NBR	X			X			X
L	NBR	X	-	-	X	-	-	-
PL	NBR							X
A	NBR/REF	-	-	-	X	X	-	X
NL	NBR/REF	-	-	X	X	X	X	-
FIN	REF							-
N	REF	X	X	X	X	X	X	-
S	REF	-	-	-	X	X	X	-
BG	-	-	-	-	X	-	X	X
CY	-							X
EST	-	X		X				X
GR	-	X			X			X
H	-	X	-	-	X	X	X	X
HR	-	X	X	X	X	X	X	X
IL	-	X						
IRL	-	X	X					X
IS	-	-	-	X	X	-	X	-
LT	-	-	-	-	X	X	X	-
LV	-	X	-	X	X	-	-	X
M	-	X		X				X
P	-							X
RO	-				X		X	-
RUS	-							
SK	-	-	-	-	X	-	X	X
SLO	-	X			X		X	-
TR	-							
AUS/NSW	GDL	X	X	X	-	-	-	-
AUS/QLD	GDL							
AUS/VIC	GDL	X	X	X	-	-	-	X
CDN/NS	GDL	X						
CDN/ON	GDL	X	X	X	X	X	X	-
CDN/QC	GDL	X	-	X	-	-	-	-
NZ	GDL	X	X	X				X
USA/CA	GDL			X	X			
USA/FL	GDL							-
USA/NC	GDL							X

Tab. 8: Independent theory learning – Available teaching/learning media and publication of test items (“CBT” = Computer-based training; “X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Teaching/learning media and learning methods

It can be determined from Table 8 that, across all countries, textbooks and manuals are the most widely used teaching/learning media, but at the same time that computer-assisted learning offers have also gained widespread popularity. In most European countries, the teaching/learning media are made available predominantly by commercial providers, as well as by authorities and test organisations. In the GDL countries, by contrast, media are supplied above all by the relevant authorities and test organisations²⁸.

As revealed further by the table, the test questions for the knowledge test are publicly accessible to novice drivers in two of the major West European countries, namely in Germany and France. The test questions are also published in the majority of the neighbouring countries around Germany, whereas publication is only seldom the case in the reform-oriented countries. In the GDL countries, too, the test questions used are generally not published; it must be taken into account, however, that data was here only available for a few of countries.

In the countries in which the test questions used by the knowledge test are publicly accessible, they are usually also made available via the various teaching/learning media for independent theory learning. The test questions can be purchased on CD-ROM (e.g. in Great Britain and Cyprus) or in book form as a task catalogue (e.g. in Bulgaria or Germany); in some cases, they may also be accessible via the Internet (see “Computer-based test simulations” below). Further presentation forms include “flashcard sets”, where the individual questions are printed on one side of a flash card and the correct answer on the reverse (e.g. in Switzerland), or applications which can be downloaded to a mobile telephone. In the countries in which the test questions are not publicly accessible, the various teaching/learning media for test preparation usually present tasks similar to the real test items; such media may also be published by driving school associations or else made available via the Internet. In Finland, the overall thematic focus of the subject areas covered by the knowl-

edge test (see Chapter 3.3.2) is published rather than actual test questions, and teaching materials are offered on this basis.

As the information on the availability of teaching/learning media in Table 8 is still relatively general, it is of particular interest to consider the various functions fulfilled by independent theory learning in different systems of novice driver preparation. While independent theory learning is in some countries limited to preparation for the knowledge test in the sense of learning test questions and the correct answers, there are other countries in which teaching/learning methods and media lend significantly broader thematic and methodical support to competence acquisition. Independent theory learning here serves, for example, to train traffic perception or to facilitate initial practical driving competence acquisition. The teaching/learning media may also play a role in the building of longer-term practical driving experience, for example as reference materials for parents in connection with accompanied driving (see Chapter 3.2.7) or as further learning offers addressing specific traffic-related topics (e.g. environmentally aware driving).

On the basis of their specific content and functions, it is possible to distinguish the following principal forms of teaching/learning media for independent theory learning: Textbooks/manuals to support general competence acquisition, computer-based test simulations, information platforms on the Internet, concepts for Internet-based competence acquisition and “blended learning”, traffic perception training. In the next sections, these principal forms are to be viewed more closely by way of examples from different countries. The descriptions centre primarily on those media which are made available or else recommended by the test organisations or other competent authorities.

Textbooks/manuals to support competence acquisition:

Textbooks present the prescribed training content for formal driver training, as stipulated in licensing legislation and regulations, in didactically appropriate form. In Germany, such textbooks are based on the Learner Driver Training Ordinance (Fahr-schAusbO). The content of the road traffic regulations is also presented vividly in a textbook in Luxembourg (“Code de la Route Populaire”). In Sweden, Finland and Norway, an overarching curriculum independent of the specific teaching and learning forms (see Chapter 3.2.5) represents a binding foundation for the contents of novice driver preparation. In Finland, for example, learner drivers must decide whether they wish to complete their driver training by way of instruction given in a profes-

²⁸ The legal competence for measures relating to driver licensing generally rests with the supreme state authority responsible for road traffic in the individual countries. The actual implementation of the measures, however, may also be delegated to subordinate state agencies or private institutions (e.g. test organisations). In Germany, for example, driving licence testing is entrusted to the Technical Examination Centres (Technische Prüfstellen). In the present report, the international comparisons refer in this context to “authorities and test organisations”. Country-specific responsibilities are only differentiated further in a few isolated cases in Chapter 3.4.

sional driving school training or on an exclusively private basis, i.e. with lay instructors. In both cases, they must observe the specified curriculum contents.

In the Australian state of Victoria, the road traffic authority provides accompanying materials to support longer-term driving competence acquisition within the framework of the GDL system. At the beginning of the supervised learning phase and during the further course of novice driver preparation, the novice drivers are offered various textbooks and workbooks to assist their preparation for pending tests and the transitions between individual stages of the graduated driver licensing system, as well as to provide further information useful for the building of practical driving experience:

- When a learner driving licence is issued to permit accompanied driving, the novice driver receives a so-called “Learning Kit” comprising a textbook (“Guide for Learners”) and a driving record book (“Learner Log Book”), as well as a manual for the responsible accompanist (“Guide for Supervising Drivers”).
- At the commencement of solo driving, a further information package (“Probationary Kit”) is provided, with information for the novice driver on the protective regulations applicable during the autonomous learning phase and separate information for parents.

Similar textbooks and workbooks are also available in the neighbouring state of New South Wales. They serve to assist the preparation for tests (e.g. the manual “A Guide to the Driving Test” as preparation for the practical driving test or the “Hazard Perception Handbook” as preparation for the traffic perception test) and support the acquisition of further knowledge and practical driving experience (e.g. the manual “A Guide for New Drivers”, in which the system of novice driver preparation is described, or the “Road User’s Handbook” conveying knowledge relating to traffic rules and safe driving behaviour).

Computer-based test simulations:

Internet-based offers serving preparation for the knowledge test are available in all the countries considered by the present project. In most cases, these offers involve the novice driver answering questions presented in the format typically used in the knowledge test (multiple-choice or true/false questions; see Chapter 3.3.2). The questions are often even arranged in the form of a test simulation, i.e. the novice driver must complete the same number of test items as in the actual knowledge test and subsequently receives feedback on the numbers of questions which were answered cor-

rectly or incorrectly, in other words whether the simulated test was passed or not. Such Internet offers are generally to be found on the websites of private, commercial providers (e.g. teaching media publishers); given the diversity of such offers, however, it is difficult to verify the underlying quality (e.g. the currency of the test items presented). On the other hand, there are many countries in which opportunities for self-assessment are made available via the Internet by the responsible test organisations or the responsible state authorities (e.g. in Germany, Greece, Great Britain and Austria). In some countries, the simulations are not based on the actual test items used by the knowledge test, but instead merely on similar items (see above).

Internet-based information platforms:

In addition to the possibilities for test preparation, the Internet is used in practically all the project countries to communicate also general information relating to driver licensing. For example, the responsible state authorities or test organisations often provide information not only on minimum ages and training prerequisites, but also on the procedures for testing and test requirements. In the group of GDL countries, in particular, it is generally also possible to download textbooks and workbooks from the Internet free of charge, and in this way to gain information on the applicable protective regulations (e.g. driving restrictions) at the various stages of the process to obtain a driving licence.

In some countries, certain information offers are geared specifically to the target group of young novice drivers. The Swedish road traffic authorities, for example, have set up a web page devoted specifically to the topic of driving under the influence of alcohol and drugs²⁹ as information for both young drivers and their parents and teachers. The risks in the context of traffic participation are illustrated in the form of facts and by the individual stories of persons injured or killed in road accidents. Teachers are able to order theme-related materials as a basis for corresponding lessons. In New South Wales, the website of the Road Traffic Authority offers a diversity of information on the system of novice driver preparation.³⁰ At the same time, wide-ranging information on the various regulations and test procedures of the graduated driver licensing system can be obtained via another website on the Internet.³¹ There, it is possible to call up articles on different aspects of driving safety (e.g.

²⁹ <http://www.trafikverket.se/ddd> (1 September 2011)

³⁰ <http://www.rta.nsw.gov.au/licensing> (1 September 2011)

³¹ <http://www.geared.com.au> (31 August 2011)

driving at night, overtaking), as well as on buying, maintaining and obtaining insurance for a motor vehicle.

Internet-based competence acquisition/blended learning:

The computer is a medium which enables relatively simple integration of independent theory learning with training in a driving school ("blended learning"). In Great Britain, for example, novice drivers are able to train their hazard perception skills with the aid of an Internet-based e-learning program ("a2om")³². It is furthermore possible to complete a special driver education course which is state-recognised as a training qualification measure. The course comprises five modules – "Driving skills and risk", "Safe interaction with other road users", "Environmental driving", "Driving responsibilities" and "Safe driving behaviour" – and is conducted in combination with sessions of practical driving instruction with a professional driving instructor.

In New Zealand, the Transport Agency offers an Internet platform through which novice drivers can complete training/learning units serving to support their acquisition of practical driving experience and as preparation for the driving test.³³ The so-called "Practice" programme is aimed at novice drivers in possession of a learner driver licence and their supervising accompanists. It comprises a total of 14 thematic levels (e.g. reversing, roundabouts, changing lanes), each of which is assigned to a particular level of difficulty. After reading and understanding the tips and instructions presented on the Internet platform, the novice driver is intended to practice the corresponding driving skills in real traffic under the supervision of an experienced adult. The user interface arranges the individual components as a virtual "learning course", in accordance with the order in which the topics should be learned. Each unit consists of a text explanation of the learning objectives and a short video to illustrate practical implementation of the unit concerned; a recommendation is also given as to a minimum number of hours of practice in real traffic for the particular skill. Participants and their supervising drivers can register free of charge via the Internet platform. While working through the individual skill units, the novice driver is required to record the number of hours spent driving under his personal login to the platform. The designated accompanist can view the novice driver's documentation and can give feedback as to whether he is ready to progress to the next level of the virtual training course, or whether the present unit still

requires further practice. After registering, novice drivers are also sent a PC-based driving simulation program ("CD-DRIVES"), with which they can train their hazard perception skills (see "Traffic perception training" below). Registered participants automatically take part in a series of prize draws at different stages of the programme (for novice drivers with 40, 80 and 120 hours of documented driving experience) with the chance to win gift vouchers. The documented scope of driving practice is also used in scientific studies and for a formative evaluation of the programme as such.

Traffic perception training:

In those countries in which learners must pass not only a knowledge test, but also a traffic perception test (see Chapter 3.3.3), corresponding offers for preparatory practice are usually to be found on the Internet. In the Australian state of New South Wales, the website of the Road and Traffic Authority presents simplified animated sequences to illustrate the procedure of the traffic perception test; the real videos used in the actual test, however, are not publicly accessible. In Great Britain, novice drivers can prepare for their traffic perception test by way of video sequences from the later test. To this end, a 60-minute DVD with interactive practice examples and feedback on the user's performance ("The Official DSA Guide to Hazard Perception") can be obtained from the test organisation.

Novice drivers in New Zealand are offered a computer-based training program ("CD-DRIVES") aimed at improving their visual orientation, hazard recognition and risk management (see "Internet-based competence acquisition/blended learning" above). The program was developed at the Waikato University and is made available to novice drivers free of charge. It comprises five training units, each of which can be completed in approximately 15-20 minutes, and requires the novice driver to display a timely reaction in filmed traffic situations viewed from the driver's perspective.

To summarise, it can be determined that independent theory learning often serves as preparation for the knowledge test. In a few individual cases, however, there are nevertheless pointers to innovative concepts which aim to support the building of driving experience in real traffic and the acquisition of partial competences relevant to driving behaviour, such as traffic observation and hazard recognition.

³² <http://www.a2om.com> (31 August 2011)

³³ <http://www.practice.co.nz/> (31 August 2011)

3.2.4 Practical driving instruction

“Practical driving instruction”, as a teaching and learning form, refers primarily to teaching/learning situations in which application-related skills (e.g. vehicle operation or vehicle handling in particular traffic situations) are conveyed by an instructor, whether that be a driving instructor or a lay trainer (see Chapter 2.3.2). It serves the acquisition of an initial practical driving competence which can be deemed to justify permitting a novice driver to participate solo in motorised road traffic. The practical driving instruction is given predominantly on public roads, but in part also on separate practice grounds. The principal teaching/learning medium is an actual motor vehicle to be used for driving.

In the following, the teaching/learning form “Practical driving instruction” is to be analysed with regard to the applicable legal regulations, the persons entitled to provide instruction (i.e. lay trainers or professional instructors), the manner in which instruction is given, and the characteristic teaching/learning methods and media. The first section considers initially the existing legal framework in the individual countries. The design of the instruction sessions is then presented in the subsequent sections “Teaching/learning methods” and “Teaching/learning media”; they are based above all on the data provided by experts.

Mandatory attendance and number of lessons

Table 9 provides an overview of the countries in which it is mandatory to attend professional practical driving instruction and the minimum number of lessons to be taken, where applicable. With regard to the legal basis, it shows furthermore who is permitted to offer practical driving instruction. As far as the major West European countries are concerned, it can be seen that a legal requirement to attend professional practical driving instruction exists only in Germany, even though it is general practice in further countries (France, Spain). In the majority of the neighbouring countries around Germany, professional practical driving instruction is mandatory. It is likewise established throughout the reform-oriented countries, although a high level of significance is here also attached to lay training. The following examples illustrate the different types of regulations: In Belgium, it is only manda-

tory for a novice driver to attend a driving school in conjunction with the optional training model “18M”. In Sweden, on the other hand, all novice drivers are required to complete a three-hour course on hazard avoidance (“Riskutbildning”) with a professional driving instructor before commencing solo driving. In the Netherlands, formal driver training is not explicitly prescribed, but it is at the same time not permitted to learn to drive with a lay trainer in real traffic, which means that professional practical driving instruction is de facto mandatory.

Formal training is not mandatory in most GDL countries, but a minimum number of hours is often specified for practical driving instruction or for longer-term practical driving experience. In the Australian states of New South Wales and Victoria, practice totalling at least 120 hours is prescribed, to be completed over a minimum 12-month period of supervised learning prior to solo driving. There are no stipulations, however, as to how this required scope of practice is to be acquired (i.e. lay training or professional driving school instruction). In the Canadian province of Ontario, all novice drivers must complete 10 hours of night-time driving during the 8 to 12-month supervised learning phase, before being allowed to take a driving test and commence solo driving; here, too, both private and professional instruction is possible. Novice drivers in the Canadian province of Québec, by contrast, must take at least 15 lessons (50 minutes each) with a professional driving instructor; further practical experience is to be acquired before the transition to solo driving by way of additional lay training and accompanied driving. In the US states of California and North Carolina, novice drivers applying for a learner driving licence must attend a corresponding training course (“Driver Education”) comprising 30 units (50 minutes each) of theory classes (“Classroom hours”) and six units (60 minutes each) of practical driving instruction (“Behind-the-wheel instruction”).

From the teaching/learning theory perspective, it is interesting, moreover, to consider the extent to which professional and private practical driving instruction can be combined within the individual systems; this is of significance both for the scope of practice acquired and for the diversity of opportunities for practice.

Country	Group	Mandatory attendance	Minimum number of lessons	Legal framework governing practical driving instruction
D	WEU	X	12 (45 minutes each) ¹	Exclusively commercial practical driving instruction permissible
E	WEU	-	-	Commercial and/or private practical driving instruction possible
GB	WEU	-	-	Commercial and/or private practical driving instruction possible
I	WEU	-	-	Commercial and/or private practical driving instruction possible
F	WEU/NBR	- ²	20 (60 minutes each)	Commercial and/or private practical driving instruction possible
B	NBR	- ³	20 (60 minutes each)	Commercial and/or private practical driving instruction possible
CH	NBR	-	-	Commercial and/or private practical driving instruction possible
CZ	NBR	X	34 (45 minutes each)	Exclusively commercial practical driving instruction permissible
DK	NBR	X	24 (45 minutes each)	Exclusively commercial practical driving instruction permissible
L	NBR	X	16 (60 minutes each)	Exclusively commercial practical driving instruction permissible
PL	NBR	X	30 (45 minutes each)	Exclusively commercial practical driving instruction permissible
A	NBR/REF	X	6/12 ⁴ (50 minutes each)	Commercial and private practical driving instruction possible
NL	NBR/REF	-	-	Exclusively commercial practical driving instruction permissible
FIN	REF	(X) ⁵	30 (25 minutes each)	Commercial or private practical driving instruction possible
N	REF	X	10 (45 minutes each)	Commercial and private practical driving instruction possible
S	REF	- ⁶	-	Commercial and/or private practical driving instruction possible
BG	-	X	31 (50 minutes each)	Exclusively commercial practical driving instruction permissible
CY	-	-	-	Commercial and/or private practical driving instruction possible
EST	-	X	32 (25 minutes each)	Exclusively commercial practical driving instruction permissible
GR	-	X	20 (45 minutes each)	Exclusively commercial practical driving instruction permissible
H	-	X	29 (50 minutes each)	Exclusively commercial practical driving instruction permissible
HR	-	X	35 (45 minutes each)	Exclusively commercial practical driving instruction permissible
IL	-	X	28 (40 minutes each)	Exclusively commercial practical driving instruction permissible
IRL	-	X	12 (60 minutes each)	Commercial and private practical driving instruction possible
IS	-	X	16 (45 minutes each)	Commercial and private practical driving instruction possible
LT	-	X	20	Exclusively commercial practical driving instruction permissible
LV	-	X	14 (60 minutes each)	Commercial and private practical driving instruction possible
M	-	-	-	Commercial and/or private practical driving instruction possible
P	-	X	32 (50 minutes each)	Exclusively commercial practical driving instruction permissible
RO	-	X	30	Exclusively commercial practical driving instruction permissible
RUS	-	-	-	Commercial and/or private practical driving instruction possible
SK	-	X	41 (45 minutes each)	Exclusively commercial practical driving instruction permissible
SLO	-	X	20 (50 minutes each)	Exclusively commercial practical driving instruction permissible
TR	-			
AUS/NSW	GDL	-	120 (60 minutes each) ⁷	Commercial and/or private practical driving instruction possible
AUS/QLD	GDL	-	100 (60 minutes each) ⁷	Commercial and/or private practical driving instruction possible
AUS/VIC	GDL	-	120 (60 minutes each) ⁷	Commercial and/or private practical driving instruction possible
CDN/NS	GDL	X ⁸	6/10	Commercial and private practical driving instruction possible
CDN/ON	GDL	-	(10) ⁹	Commercial and/or private practical driving instruction possible
CDN/QC	GDL	X	15 (50 minutes each)	Commercial and private practical driving instruction possible
NZ	GDL	-	-	Commercial and/or private practical driving instruction possible
USA/CA	GDL	X	6	Commercial and private practical driving instruction possible
USA/FL	GDL	-	-	Commercial and/or private practical driving instruction possible
USA/NC	GDL	X	6	Commercial and private practical driving instruction possible

Tab. 9: Practical driving instruction – Mandatory completion of professional driver training and prescribed number of lessons (“X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ 12 “special training drives” at the end of driver training, previously “basic training” (no minimum scope; approx. 15 to 30 lessons); ² Exclusively lay training is permissible, but rarely practised; ³ Mandatory attendance only under the “18M” model; ⁴ Refers to “basic training” in a driving school: 12 lessons plus “special training drives” after accompanied phase under “L17” model, 6 lessons plus “basic training” (no minimum scope) and 5 “special training drives” before driving test under “L18” model. ⁵ Binding curriculum, instruction either by lay persons or in a driving school; ⁶ 3-hour mandatory course on hazard avoidance before commencing solo driving; ⁷ Including accompanied driving; ⁸ “Defensive Driving Course” (6 hours) or “Driver Training Course” (25 hours theory and 10 hours practical instruction); ⁹ Optional offers must include min. 10 hours practical driving instruction.

As already mentioned, Germany is the only one of the major West European countries which prescribes professional practical driving instruction. This corresponds also to the de facto situation in France and Spain, despite the fact that a training monopoly for commercial driving schools is there not anchored in the legal regulations. In the group of neighbouring countries around Germany, such a training monopoly is granted to driving schools in Denmark, Poland and the Czech Republic, whereas combinations of private and professional practical driving instruction are possible in the reform-oriented countries. This applies similarly for the GDL countries; in this group, professional practical driving instruction is only a mandatory requirement in the Canadian provinces of Nova Scotia and Québec and in the US states of California and North Carolina.

In those countries in which professional practical driving instruction is mandatory, the required minimum scope of instruction varies from six lessons in the US states of California and North Carolina to 35 lessons (45 minutes each) in Slovakia. The corresponding specifications (see Table 9) refer to the minimum requirements and may thus be exceeded in accordance with the practice needs of the individual novice driver.

In the group of major West European countries, a minimum scope of professional practical driving instruction is only stipulated in Germany and France. In Germany, the regulations specify a certain number of so-called “special training drives” (5 lessons on roads outside built-up areas, 4 lessons driving on motorways and 3 lessons driving in the dark) alongside a undefined scope of “basic training”, the duration of which is determined at the discretion of the driving instructor (successful completion of the “basic, supplementary and advanced stages” of driver training; see Chapter 3.2.5). According to the information provided by experts, 30 lessons (45 minutes each) represent the lower limit for the necessary scope of practical driving instruction. In France, exclusively lay training is legally permissible, but nevertheless rarely practised. The prescribed minimum number of 20 lessons (60 minutes each) for practical driving instruction applies only when attending a commercial driving school. Novice drivers typically take a total of approx. 30 lessons (60 minutes each) with a professional driving instructor. A combination of professional driving school training and practical driving instruction with a lay trainer is not permitted

in Germany. In France, on the other hand, novice drivers are allowed to practice under the supervision of a lay person, either additionally or exclusively – provided a vehicle with dual controls is used. The lay trainer must be at least 21 years of age and in possession of a driving licence.

In the groups of neighbouring countries around Germany and reform-oriented countries, there are certain countries in which no minimum number of lessons is specified for professional practical driving instruction (e.g. Netherlands, Sweden). In the Netherlands, where driving schools hold a de facto training monopoly, novice drivers take around 40 to 50 professional driving lessons on average; in Sweden, where private and professional practical driving instruction can be combined freely and around 80 per cent of the novice drivers make use of this possibility, an average of 21 professional driving lessons is taken.

Teaching/learning methods

One of the essential tasks of a professional driving instructor, or where appropriate a lay trainer, is to provide for exposure to teaching/learning situations which permit the learner driver to tackle and successfully master increasingly complex traffic-related demands. The selection of suitable teaching/learning methods should ideally take into account both the required training content and the current learning status of the novice driver, and should furthermore support a broad spectrum of methodical approaches. Structuring of the training content, “metering” of the demands placed on the novice driver during the learning process and didactically meaningful training methods are thus central features of pedagogically founded and demanding practical driving instruction.

Within the framework of an international study to compare systems of novice driver preparation, it is only feasible to consider some of the main aspects of teaching/learning process design. A number of teaching/learning methods with immediate relevance for the process of learning to drive and for structuring of the driving-related demands are to be described in the following and illustrated by way of examples from individual countries; a corresponding overview is presented in Table 10.

Country	Group	Driving on a practice ground	Driving on standard routes ¹ in real traffic	Driving on flexible routes in real traffic	Commentary driving	Demonstration by driving instructor	Independent driving	Script learning	Self-assessment by novice driver
D	WEU	X ²	-	X	-	X	X	-	X
E	WEU								
GB	WEU	X	X	X	-	-	-	-	-
I	WEU								
F	WEU/NBR	-	X	-	-	-	X	-	-
B	NBR	-	X	X	X	X	-	-	-
CH	NBR								
CZ	NBR	X	X	X	-	-	-	-	-
DK	NBR								
L	NBR	X	X	X	-	-	-	-	X
PL	NBR								
A	NBR/REF	X	-	X	X	-	X	-	-
NL	NBR/REF	-	X	X	X	X	X	X	-
FIN	REF								
N	REF	X	-	X	-	X	X	-	X
S	REF	X	X	X	X	X	X	-	X
BG	-								
CY	-								
EST	-								
GR	-	X	X	X	-	-	-	-	-
H	-	X	-	X	-	-	X	X	-
HR	-	X	-	X	X	X	X	X	X
IL	-								
IRL	-								
IS	-	-	X	X	X	-	-	-	-
LT	-	X	X	X	X	X	-	-	-
LV	-	X	-	X	-	X	-	-	-
M	-								
P	-								
RO	-								
RUS	-								
SK	-	-	X	-	X	-	-	-	-
SLO	-								
TR	-								
AUS/NSW	GDL	-	X	X	-	X	-	-	-
AUS/QLD	GDL								
AUS/VIC	GDL	-	-	X	X	X	X	-	X
CDN/NS	GDL								
CDN/ON	GDL	-	-	X	-	-	-	-	-
CDN/QC	GDL	X	X	X	X	-	-	-	X
NZ	GDL								
USA/CA	GDL								
USA/FL	GDL								
USA/NC	GDL								

Tab. 10: Practical driving instruction – Teaching/learning methods in training with professional driving instructors (“X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ The term “standard routes” refers to special (training) routes, along which the typical driving demands (i.e. demands independent of the prevailing weather conditions) are well known to the instructors of all driving schools and are thus chosen frequently to promote acquisition of the particular level of driving competence necessary to master those demands on the part of the novice driver. ² Use of practice grounds or driving in traffic-calmed zones

Driving on a practice ground:

Practical driving instruction represents the first step towards acquisition of initial practical driving competence, and must first enable the novice driver to acquire basic vehicle operating skills (e.g. use of the clutch, steering). Practice grounds are for novice drivers an opportunity to develop these driving skills in a low-traffic, essentially non-dangerous environment. It is also possible to simulate specific demand situations on a practice ground (e.g. by placing cones to represent a parking space). Driving on a practice ground is consequently a regular component of practical driving instruction in many countries (see Table 10). As parts of the driving test – usually basic driving manoeuvres – are examined on a practice ground in some countries, it seems expedient to make use of practice grounds also within the framework of preparation for the test. In Latvia, for example, basic vehicle handling is taught on a practice ground, and such grounds are also visited to practice the three basic driving manoeuvres “Parking parallel to the direction of traffic”, “Driving up to a ticket machine” and “Turning the vehicle to face in the opposite direction” which are required in the later driving test (see Chapter 3.3.5).

Commentary driving:

With the method of “commentary driving”, the novice driver expresses, to a certain extent, the observations he makes while driving, any potential hazards which are perceived and his planned actions. In this way, he communicates his perceptions and action intentions to the driving instructor, who is then able to give more situation-specific instructions, where appropriate. The method of “commentary driving” is furthermore assumed to provide an outsider with an efficient means to understand the process of information acquisition on the part of the driver, his evaluation of the information gained in respect of its hazard relevance and his expectations in certain traffic situations, and thereby to identify possible deficits (RUSSELL, 1998, 2003). One critical aspect is the fact that “commentary driving” places additional demands on the learner driver beside mastery of the immediate driving task. This double task may produce interference effects, depending on which of the tasks “is granted a higher priority”: The greater mental demand may result in poorer completion of the driving task than would have been the case without additional verbalisation. Similarly, the additional demand could lead to a reduced quality or number of comments, thus limiting the possibilities of this methodical approach (HELMAN, 2008). As can be seen from Table 10, “commentary driving” is a relatively widely used teaching/learning method –

at least in those countries for which corresponding data were received from experts.

Independent driving

The concept of “independent driving” refers to a form of driving practice in which the driving instructor no longer gives constant single instructions, but instead provides a more comprehensive route description or else specifies a destination to which the novice driver must navigate independently. Such tasks could involve, for example, driving to a known local point of interest (e.g. town hall, railway station), using a navigation system or map to reach a specified destination, or negotiating a certain longer route on the basis of a series of instructions (e.g. “turn right at the next junction, continue straight on for 100 metres, and then turn left and follow the road to the edge of town”). Such “independent driving” in which simple destinations or bundled route descriptions are given in place of step-by-step instructions is found in practically all reform-oriented countries. In the Netherlands, Norway and Finland, “independent driving” is used both as a teaching/learning method within the framework of practical driving instruction (see Table 10) and as an element of the driving test.

Script learning:

So-called “script learning” is a teaching/learning method which is used, for example, within the framework of the Dutch training concept “Driver Training Stepwise” (see Chapter 3.2.5). The acquisition of complex skills is here facilitated on the basis of explicitly described action sequences (“scripts”), which break an overall procedure down into its constituent steps. The script “Starting the engine”, for example, comprises the elements “Release hand brake”, “Shift gear stick to neutral position”, “Depress clutch with left foot”, “Turn ignition key”, etc. The benefits of such scripts, which are also used for more complex driving procedures such as turning left across oncoming traffic, lie in the standardisation of the learning processes and the simplified communication between driving instructor and novice driver. Script learning is used in professional practical driving instruction in at least a few countries (see Table 10).

Self-assessment by the novice driver:

It is desirable for a novice driver to develop the ability to adequately assess his own driving competence, so as to ensure that, in later solo driving, he will only expose himself to those driving situations which he can also master with reliable confidence (EU Project BASIC, 2003). It can be seen from Table 10, that self-assessments of own driving skills by the novice driver are used as a teaching/learning method in practical driving instruction

in several European countries (Germany, Luxembourg, Norway, Sweden) and GDL systems (Victoria, Québec).

Teaching/learning media

The training vehicle is initially the principal teaching/learning medium used in practical driving instruction. Further media are nevertheless in use in various situations, for example documentation of the learner's driving behaviour and practice. In the following, relevant teaching/learning media are identified by way of corresponding examples.

Training vehicle:

In the case of professional practical driving instruction, the training vehicle is usually fitted with additional mirrors and with dual controls (clutch, accelerator and brake pedals) on the passenger side. Similar additional equipment features are often also prescribed for a vehicle used for practical driving instruction by a lay person or for accompanied driving. Where such stipulations require a certain technical outlay, they represent an important criterion for the accessibility and use of these teaching and learning forms. In Spain and Finland, for example, a vehicle with dual controls is a prerequisite for private practical driving instruction, while other countries demand only additional mirrors to enable all-round traffic observation from the passenger seat. There are also some countries in which no modifications whatsoever are necessary for the training vehicle. An overview of the demands placed on the vehicles used either for practical driving instruction with a lay trainer or for accompanied driving is to be found in Chapter 3.2.7.

In most cases, the vehicle is furthermore marked as a training vehicle, for example by the letter "M" in Latvia or the sign "AUTO-ECOLE" or "MOTO-ECOLE" in Luxembourg. In Sweden, the vehicle must display a plate or sticker with the text "ÖVNINGSKÖR" ("driving practice") – either in red for training with a professional driving instructor or in green for practice under the supervision of a lay person.

Driver assistance systems:

In the context of a vehicle serving as a teaching/learning medium, the increasing availability of driver assistance systems leads to a shift in the demands associated with vehicle handling and control. This has hardly been taken into account in driver training to date, but can be considered a challenge of the future. In Austria and Great Britain, the presence of such systems in the training vehicle determines whether or not the topic of driver assistance systems is addressed during practical driving instruction. In the Netherlands, driving according to the instructions given by a

navigation system is a possible element of the driving test and is thus also practised accordingly.

Driving data recorders/video recordings:

Electronic driving data recorders and video cameras can be used to document teaching/learning processes within the framework of practical driving instruction and to facilitate integration with other teaching/learning forms such as independent theory learning. The potential of driving behaviour documentation as a means to improve driver training has already been investigated in several research and development projects (LOTAN & TOLEDO, 2006, 2007; REINMANN & VOHLE, 2009); video recordings made during driving lessons, for example, can later be reviewed on a computer by the novice driver, and corresponding commentary functions can then be used to exchange information and remarks with the driving instructor. In this way, the teaching and learning possibilities of practical driving instruction can be extended beyond the actual training sessions. In Israel, tests are being conducted with data recorders to document driving behaviour and provide feedback to the novice driver on relevant driving behaviour in connection with dangerous situations or an environmentally aware style of driving.

Driving logbooks:

Detailed documentation of the progress of teaching/learning during practical driving instruction is apparently only used as a basis for further course design in a few countries. In these countries, driving logbooks are either prescribed or at least widely used; depending on the form of their use, they may serve primarily to document the course units completed together with the driving instructor or else furthermore to provide feedback to the novice driver on his learning performance. Novice drivers in Latvia, for example, must record the number of hours of practical driving instruction completed in a logbook – this information is not then used further, however, to evaluate learning progress to date. In Austria, on the other hand, the training contents and the achievement of learning objectives are recorded as part of each driving lesson. In Great Britain, logbooks may be kept voluntarily to document driving practice, but not all novice drivers make use of this possibility. In Germany, so-called "training progress sheets" ("Ausbildungsdiagrammkarten") are available to driving instructors as an element of the training curriculum to document learning progress (see Chapter 3.2.5); they serve as a checklist for the driving instructor to record the completion of individual points of the curriculum and as a basis for the joint planning of forthcoming training sessions together with the learner driver.

To summarise, it can be said that the teaching/learning form “Practical driving instruction” is practised widely in both professional and private, non-commercial variants. Differences exist with regard to the accessibility of these variants: In some systems, commercial driving schools are granted a *de jure* or *de facto* training monopoly; the possibilities for initial driving competence acquisition are here limited to professional training forms. In other systems, it is possible to make use of either both variants in combination or even solely private practical driving instruction to acquire initial driving competence. Where private practical driving instruction is permitted, the possible disadvantage of a lesser training quality – in the sense of structured and efficient training – must be weighed up against the benefit of lower training costs, and thus of a potentially increased extent of training.

3.2.5 Teaching plans and training curricula

From the educational psychology perspective, control of the training processes which take place in the course of novice driver preparation is guaranteed by teaching plans or – better still – by training curricula. Teaching plans generally limit themselves to a catalogue of learning contents; in some cases, the listed contents may also be structured thematically (e.g. into subject areas) and classified according to their significance for application of the acquired knowledge and skills (e.g. acquisition level). Curricula, on the other hand, go far beyond a mere listing of learning contents and describe training sequences geared to the learning objectives and processes (TENORTH & TIPPELT, 2007). A curriculum establishes social references and incorporates a presentation of the desired purpose and the intentions to be served by the required training effects; it defines the context of curriculum development (e.g. responsibilities, processes), the organisation of teaching and learning processes, the learning objectives (relating to the learning contents) and teaching/learning media, test procedures and test contents, as well as measures for evaluation and further development (KELLY, 2009; MARSH, 2009; OLIVA, 1997). Applying this distinction, the training specifications for novice driver preparation are generally to be deemed teaching plans, which are invested with a more or less legally binding effect by way of state-decreed regulations.

The following sections describe the teaching plans and training curricula on which driver training is based in different countries. The countries taken

as examples here are intended to illustrate the spectrum of curricular design possibilities. To this end, individual countries have been selected from each group – without any claim to formation of a representative sample – to investigate the contents found in curricula, the manner in which these contents are arranged over the course of the learning process, and the teaching/learning forms used to facilitate the acquisition of knowledge and skills.

Germany (WEU)

In Germany, the Learner Driver Training Ordinance is founded in public law and defines the following training objectives and contents (FahrschAusbO, § 1 “Objective and contents of training”):

“(1) The objective of training is qualification as a safe, responsible and environmentally aware participant in road traffic. The objective of training is furthermore preparation for the driving licence test.

(2) The training is to convey traffic behaviour which [incorporates] the following elements:

- Abilities and skills to master a vehicle also in difficult traffic situations,
- Knowledge, understanding and application of road traffic regulations,
- Abilities and skills to recognise and control hazards, including the avoiding and averting of hazards,
- Knowledge of the effects of driving errors and a realistic self-assessment,
- Readiness and ability to display considerate and cooperative behaviour, and awareness for the significance of emotions when driving, and
- Responsibility for life and health, the environment and property. [...]”

For practical driving instruction, it is furthermore prescribed that “... practical instruction [...] is to refer to the theoretical training and is to be integrated with the latter in respect of content”.

The training contents anchored in German law³⁴ must be acquired within the framework of mandatory driving school training comprising theory classes and practical driving instruction. Teaching material publishers have produced guidelines on didactic implementation of the specifications in theory classes; with regard to practical driving instruction, the German Federation of Driving Instructor Associations (Bundesvereinigung der

³⁴ The specific contents of theory classes and practical driving instruction are described in detail in Annexes 3 and 4 to the Learner Driver Training Ordinance (FahrschAusbO), referring there to § 5 (1) and § 5 (3) of the ordinance, respectively.

Fahrlehrerverbände – BVF) has elaborated special “Curricular guidelines for practical training for car drivers” (“Curricularer Leitfaden – Praktische Ausbildung PKW”; LAMSZUS, 2000). These guidelines provide for further differentiation of the contents of practical driving instruction by way of a five-stage modular training model, but nevertheless maintain the general distinction between the phases of “basic training” (phases 1 to 3) and “special training drives” (phases 4 and 5). The individual training stages are characterised as follows:

1. Basic stage: The training here focuses on basic psychomotor skills and elementary knowledge (e.g. setting the seat position, vehicle operation and controls, driving exercises at speeds up to 50 km/h) which the novice driver will require constantly over the course of the training. This learning lays the foundations for all forthcoming learning objectives.
2. Supplementary stage: This stage serves to expand the novice driver's skills with regard to vehicle operation and handling, and already includes practice in more difficult driving situations. The novice driver is still intended to concentrate less on the traffic environment and instead on vehicle control, in order to achieve an increasing degree of automation of the necessary actions.
3. Advanced stage: The influences of the traffic environment are now taken into account to a greater extent, and the instruction involves driving in traffic and the mastering of different traffic situations. Practice begins in a low-traffic environment and gradually progresses via more difficult situations to cover the necessary response to critical traffic scenarios.
4. Special training drives: Driving practice is here shifted to roads outside built-up areas, followed by driving on motorways, and finally driving in the dark, in order to train safe behaviour for driving at night or after dusk.
5. Test stage: At this final stage, the individual contents of the previous training stages are repeated and revised. The novice driver also practises independent driving, both with and without specification of a particular destination. The test stage closes with exercises serving as test simulation, including differentiated performance assessment and discussion of the results with the driving instructor.

The curriculum describes concrete training contents for the aforementioned stages, at the same time formulating corresponding learning objectives and providing hints on appropriate methodical implementation for the driving instructor.

France (WEU/NBR)

In France, novice drivers normally acquire their initial competence within the framework of professional driving school training³⁵; lay training is legally permissible, but rarely practised. In connection with attendance at a driving school and after completing at least 20 course units (60 minutes each), the novice drivers can make use of accompanied driving as a teaching/learning form by which to build up practical driving experience over a longer period. The training curriculum (“Programme Nationale de Formation à la Conduite – P.N.F.”) published by the competent traffic authority (Direction de la Sécurité et de la Circulation Routières) is intended to convey knowledge (“savoir”) and ability (“savoir-faire”) and to influence the attitudes (“savoir-être”) of novice drivers. It can be divided into the following main subject areas, each of which is assigned a number of subordinate topics:

1. “Becoming a driver” (“Devenir automobiliste”)
 - Living with a motor vehicle
 - Living with others
2. “Planning for a journey” (“Gérer son déplacement”)
 - Mastering the motor vehicle
 - Adaptation to arising situations
 - Journey preparation and organisation
3. “Critical driving situations” (“États dégradés du système”)
 - Anticipating and preventing risks
 - Handling of risks in emergency situations
 - Behaviour in case of an accident
4. “Understanding the phenomenon ‘automobile’” (“Comprendre le phénomène automobile”)
 - Physiological, psychological and sociological aspects
 - Technical and dynamic aspects
 - Aspects relating to public health and ecology
 - Legal aspects
 - Economic aspects

³⁵ The content areas specified here refer to the process of obtaining a driving licence. Measures relating to road safety are furthermore anchored in an overarching framework concept (“Continuum éducatif”), which is also integrated into general school education. Over the course of their school education, pupils receive various certificates pertaining to participation in road safety training measures (e.g. the primary school certificate “Attestation de première éducation à la route – APER” (“Certificate of initial traffic education”), and the certificate “Attestation scolaire de sécurité routière de premier niveau – ASSR1” (“First-level certificate of road safety education”) obtained at the age of 14 years). The corresponding second-level certificate “Attestation scolaire de sécurité routière de deuxième niveau – ASSR2” is a prerequisite to be entitled to apply for a class B driving licence and enrol at a driving school.

For each of the subordinate topics, in turn, learning objectives are formulated with reference to the three areas “knowledge”, “ability” and “attitudes” (see above).

Czech Republic (NBR)

In the Czech Republic, the content specifications of the training curriculum refer to the mandatory training in a driving school, which comprises theory classes and practical driving instruction. Parts of the practical driving instruction can be completed on a driving simulator (see Chapter 3.2.6).

- In accordance with the training curriculum, a total of at least 36 course units (45 minutes each) must be completed within the framework of theoretical training. These theory classes are spread thematically between the subject areas “Road traffic regulations” (18 course units), “Vehicle control and maintenance” (2 course units), “Theory and principles of safe driving” (10 course units), “Instruction on first aid” (2 course units) and “Repetition and revision” (4 course units).
- The practical driving instruction is divided into three phases, which can be characterised by increasing demands and an increased traffic density. The first phase involves practical driving instruction on a practice ground (2 lessons of 45 minutes each) and driving in real traffic with a low traffic density (5 lessons of 45 minutes each). The second phase consists of driving in medium-density traffic (12 lessons of 45 minutes each) and the third phase of driving in high-density traffic (9 lessons of 45 minutes each).
- Further practical exercises are prescribed with regard to vehicle care and maintenance (2 lessons of 45 minutes each) and the practical application of first aid measures (4 lessons of 45 minutes each).

No information is available on curricular specifications relating to the order and mutual integration of theoretical and practical training components.

Netherlands (NBR/REF)

Attendance at a driving school is not explicitly prescribed in the Netherlands, but is de facto the only legally permissible form of practical driving instruction in real traffic; no minimum scope of instruction is stipulated. The training content is anchored in the corresponding teaching plans of the driving schools, but there is no binding, overarching curriculum. To improve on traditional practical driving instruction, the training programme “Driver Training Stepwise” (“Rijopleiding in Stappen” – RIS) was developed as a basis for professional driving

school training, and can be characterised by its closer integration of the individual training components and repeated learner assessment (EU Project BASIC, 2003). The “Driver Training Stepwise” programme is offered as an optional form of driving school training alongside traditional driving instruction; according to the information provided by experts, it is used by around three to five per cent of novice drivers. The training programme comprises the following four modules:

- (1) “Vehicle operation and vehicle control” (e.g. gear changing, braking),
- (2) “Mastering simple driving manoeuvres and traffic situations” (e.g. driving outside built-up areas at low speeds),
- (3) “Complex vehicle operation and control of complex driving manoeuvres and situations” (e.g. driving in busy urban traffic and on motorways) and
- (4) “Safe and responsible traffic participation” (e.g. evaluation of driving performance, driving under difficult circumstances).

As they proceed from module to module, novice drivers learn to apply the appropriate behaviour in increasingly complex traffic situations. This is achieved on the basis of “scripts”, which provide explicit descriptions of the behaviour sequences required to master certain traffic situations (see “Teaching/learning methods” in Chapter 3.2.4). At the same time, environmentally aware driving is trained over all modules. Learning progress is documented and the achievement of learning objectives is tested by the driving instructor upon completion of each module. A new module can only be started if the novice driver has achieved the learning objectives of the previous module. An external driving test examiner conducts the test at the end of the third module (see Chapter 3.3.4).

Finland (REF)

The training curriculum (FINNISH VEHICLE ADMINISTRATION, 2004) describes the contents relevant for theory classes and practical driving instruction (including the mandatory advanced training course; see Chapter 3.2.8), as well as for independent theory learning. The curriculum divides training into a number of phases, the first of which addresses the topics (1) “The driver in road traffic”, (2) “Driving in traffic situations”, (3) “Independent driving” and (4) “Driving under difficult conditions”. This is followed by an “intermediate phase”, during which the novice driver is permitted to drive solo after passing a driving test, and finally by a second training phase consisting of a mandatory advanced training course. The curriculum represents a binding basis for all novice drivers;

the required knowledge and skills in the four thematic modules, which are described in more detail below, can be acquired either exclusively in a commercial driving school (i.e. with a professional driving instructor) or exclusively through private instruction (i.e. under parental responsibility):

- (1) "The driver in road traffic": This module begins with four theory lessons in which the novice driver acquires knowledge of the system of novice driver preparation, the road traffic system and the motor vehicle in general. Only then is he permitted to commence practical driving instruction, which initially serves to convey basic skills relating to technical preparation of the vehicle, pulling away and stopping, speed regulation and vehicle handling in a low-traffic environment.
- (2) "Driving in traffic situations": In this module, six theoretical lessons are devoted, for example, to basic principles of road safety, interaction with other traffic participants, entering traffic, driving within built-up areas and negotiating junctions. These contents are subsequently practised by way of practical driving exercises. At the same time, the driving instructor's (or lay trainer's) assessment of the attained level of skill is compared with the corresponding self-assessment of the novice driver.
- (3) "Independent driving": This module addresses topics such as route planning, risk avoidance, situation-dependent driving speed and the correct behaviour in case of an accident within the framework of eight theoretical lessons. Further elements of this module include driving in real traffic at higher speeds on roads and motorways, and overtaking manoeuvres. This is also the stage at which the novice driver begins preparation for the "intermediate phase" of solo driving after the driving test (before the mandatory "Second phase of driver training"). Here, too, the driving instructor's (or lay trainer's) assessment of the attained level of skill is compared with the corresponding self-assessment of the novice driver.
- (4) "Driving under difficult conditions": The theoretical lessons of this module convey knowledge on "Driving on icy roads" (lasting 60 minutes) and "Driving in the dark" (lasting 30 minutes). Two practical lessons also deal with driving on icy roads, comprising demonstrations by the driving instructor (or lay trainer) and practical driving exercises for the novice driver on a practice ground. The novice driver must furthermore complete two practical sessions of driving in the dark. Thereafter, the novice driver is permitted to take a driving test, assuming that

an adequate overall level of skill has been achieved.

After at least six months of solo driving after passing the driving test, all novice drivers must attend a mandatory advanced training course with a professional driving instructor ("Second phase of driver training"; see Chapter 3.2.8), irrespectively of whether they initially attended a driving school or learned under the supervision of a lay trainer. This two-day course comprises theory classes on hazardous situations in road traffic, and on safe and environmentally aware driving. As a second element of the advanced course, the novice driver completes practical driving instruction in real traffic and on a practice ground, and receives feedback on the safety relevance and environmental compatibility of his driving behaviour.

Norway (REF)

The Norwegian driver training curriculum ("Curriculum – Driving licence categories B and BE"; NORWEGIAN PUBLIC ROADS ADMINISTRATION, 2004a) is based on a training model aligned to the learning objectives of the GDE matrix, with a focus placed on the so-called "higher-level learning objectives" ("Goals and context of driving", "General goals for life"). The curriculum provides for practical driving instruction with a professional driving instructor, but also expressly recommends additional driving practice under the accompanying supervision of lay trainers.

The concept for driver training distinguishes four successive stages of competence acquisition, and defines learning objectives for each of these stages. The first stage consists of a theoretical "Course on basic traffic knowledge", followed by instruction to convey "Basic competences with regard to the vehicle and driving", corresponding "Training in road traffic" and, in conclusion, "Final training". When the novice driver has completed all four stages, he is entitled to take the driving test.

The affective learning objectives anchored in the curriculum refer to attitudes and values relevant in the context of road safety. Given their limited suitability for methodical assessment, however, they are considered only during training, and are not elements of the driving test.

Sweden (REF)

In Sweden, driving knowledge and skills can be acquired by way of the optional training offered by professional driving instructors; it is equally possible, however, to choose practical driving instruction under the supervision of a lay trainer and an extended period of practical driving experience by way of accompanied driving. Mandatory formal

training components exist only in the form of an (advanced) training course on hazard avoidance ("Riskutbildning"), which every novice driver must attend before taking the driving test, and a three-hour session of theoretical instruction for novice drivers and their supervising accompanist as a prerequisite for lay driver training and accompanied driving.

The training curriculum³⁶ serves, on the one hand, to specify common learning objectives for all novice drivers, so as to guarantee comparable training throughout the country; at the same time, however, it should be possible to adapt the training to individual needs of the novice driver. The curriculum embraces the content of both theoretical and practical driving instruction and is structured into four content modules: (1) "Manoeuvring, vehicles and the environment", (2) "Driving in different traffic environments", (3) "Driving under special conditions" and (4) "Personal circumstances and goals in life". These modules are supplemented by the two competence fields "Theory and skills" (with a focus on the theoretical knowledge and practical skills necessary to drive a vehicle) and "Self-assessment" (with a focus on the attitudes of the novice driver as an individual).

The combination of four content modules and two competence fields form the framework for the training of novice drivers. For each of the modules, learning objectives are described to indicate the minimum level which must be achieved to obtain a driving licence. The following overview summarises the four modules of the driver training curriculum:

- (1) The first module achieves a basis for proficiency in vehicle operation. The novice driver learns to handle his vehicle in a safe and environmentally sound manner, and at the same time to assess his ability to do so realistically. The training content aims to promote, for example, the acquisition of necessary motor skills, an understanding of the correlations between vehicle maintenance and potential impacts on road safety and the environment, and an awareness for the consequences of neglecting to use protective systems and vehicle features (e.g. vehicle lights, safety belts), of incorrect use of such features or overestimation of their functions.
- (2) The learning objective of the second module is to expand the novice driver's ability to handle a vehicle in a safe and environmentally sound

manner in interaction with other road users, in different traffic situations and under different conditions. It serves furthermore to develop the ability to drive with foresight, to recognise risks and to maintain adequate safety clearances. The training content refers, for example, to the observance of traffic rules and adaptation of the novice driver's own behaviour to the possible incorrect actions of others. One significant aspect in this respect is communication, in other words indication of one's own action intentions and recognition of the intentions of other road users. The novice driver should learn to adapt his speed to the particular traffic situation, to establish eye-contact with other road users, to position his vehicle correctly on the road and to use his flashing indicators appropriately.

- (3) In the third module, the overarching learning objective is to understand the importance of careful journey planning, taking into account where, when and under which conditions the journey is to be undertaken. The novice driver should learn to apply the acquired knowledge to use his vehicle in the most environmentally sound manner possible, and to avoid driving in risky circumstances (e.g. in heavy traffic, on icy roads or during inclement weather, as well as under the influence of alcohol or when tired). These training contents are derived from a diversity of factors which influence driving behaviour and road safety. The novice driver should develop the ability to recognise and assess these factors and to analyse his own vehicle use critically.
- (4) The fourth module requires the novice driver to develop an understanding of how different personal and social circumstances influence his role as a driver. Through corresponding training, he should be able to recognise and take into account the influence of factors such as age, gender, personality, lifestyle, educational background and peer group affiliation on his driving behaviour and accident risk.

The Swedish curriculum, too, seeks to implement a system of affective learning objectives aimed at promoting safety-oriented driving behaviour, as has been propagated internationally since the 1960s (LEUTNER et al., 2009).

Canada/Ontario (GDL)

A minimum period of 12 months is prescribed for practical driving instruction and accompanied driving during the supervised learning phase ("G1 Licence"). If the novice driver chooses to take professional instruction ("Driver Education"), this minimum duration is reduced to eight months ("time credits").

³⁶ www.korkortsportalen.se/upload/dokument/Ovriga_dokument/TS/B%20curriculum_detailed_description.pdf (11 August 2011)

Where the driver training is provided by state-run or private driving schools³⁷, a binding curriculum (“Beginner Driver Education (BDE) – Curriculum-Standards”)³⁸ applies. It contains thematic and methodical specifications relating to theoretical and practical driving instruction, including recommendations on the measurement of learning achievement during and after the training. A minimum of 20 hours of group-based theory classes is stipulated, along with a further 10 hours of practical driving instruction. The remaining 10 course units (60 minutes each) can be allocated flexibly (e.g. to further in-vehicle practical driving instruction or to driving simulation training). The curriculum content is defined in a series of standards: “Rules of the road”, “The vehicle and its components”, “Vehicle handling”, “Driver behaviour”, “Respect and responsibility”, “Sharing the road”, “Attention” and “Perception and risk management”.

Each standard comprises a number of “intended learning outcomes”. The standard “Respect and responsibility”, for example, covers the topics “Response to emergency situations”, “Environmentally conscious and efficient driving behaviour”, “The driver as a lifelong learner” and “Factors which contribute to changes in driving skill”. To monitor achievement of the learning objectives, the novice driver must be able to explain, for example, how environmentally conscious driving contributes to safety and economic benefits.

Canada/Québec (GDL)

In Québec, professional driving school training is mandatory for all novice drivers. Practical driving instruction with a lay trainer and extended practical experience in the form of accompanied driving are nevertheless also components of the system of novice driver preparation. A curriculum (“Road Safety Education Program”; SOCIÉTÉ DE L’ASSURANCE AUTOMOBILE DU QUÉBEC, 2009) provides for combination of the different teaching and learning forms, but at the same time assigns a leading role to formal driver training in terms of content and methodology. Four learning phases with specific training content are distinguished. Together, they provide for a total of 12 modules of theory classes (24 course units of 55 minutes each) and 15 sessions of practical driving instruction (15 course units of 50 minutes each), with specific combinations of theory and practice in the individual phases:

- During the first phase, five theory modules enable the novice driver to acquire the prerequisite knowledge for granting of a learner driving licence, and thus the entitlement to commence practical driving. The fifth module involves a first evaluation of learning success.³⁹
- In the second phase, the sixth theory module serves as immediate preparation for practical driving instruction. The latter comprises mandatory lessons with a driving instructor, and optional supplementary driving practice with a lay trainer. The seventh theory module develops strategies relating to hazard recognition and risk anticipation (“Observe-Evaluate-Act”). Four practical instruction sessions are assigned to the second training phase. They teach the novice driver to perform basic driving manoeuvres and to adopt safe, cooperative and responsible behaviour in simple driving situations.
- Theory modules eight to ten, which are completed during the third phase of training, deal with the topics “Speed as the major cause of accidents involving novice drivers”, “Sharing the road with vulnerable road users (e.g. pedestrians or cyclists)” and “Alcohol and drugs”. The five practical sessions of this phase are concerned with the mastering of complex driving manoeuvres, and the training of safe, cooperative and responsible behaviour in a diversity of traffic situations.
- The final two theory modules in phase four address risk factors such as fatigue and distraction, and convey knowledge relating to environmentally aware driving. Four of the five practical sessions assigned to this phase serve to consolidate the acquired driving skills; the remaining session is devoted to preparation for the concluding driving test (see Chapter 3.3.5).

To summarise, it can be noted that training curricula and teaching plans are used to varying extents to structure and control driving competence acquisition: Some focus solely on formal driver training offers, for example, whereas others define an overarching framework combining different – formal and informal – teaching and learning forms.

³⁷ The curriculum standards must be met by private driving schools in order to obtain ministry approval.

³⁸ <http://www.mto.gov.on.ca/english/dandv/driver/curriculum/> (11 August 2011)

³⁹ The evaluation of learning success takes the form of a written knowledge test. This test was developed by the responsible test organisation, but is conducted by the driving school. The novice driver must also take a knowledge test conducted by the test organisation at the earliest 10 months later.

3.2.6 Driving simulation training

Depending on their individual technical features and the correspondingly attainable realism of the driving simulation, driving simulators offer the possibility to train specific demands and rare circumstances of participation in motorised road traffic repeatedly and without exposure to risk (see Chapter 2.3.2). The following analysis considers first of all the technical realisation of “driving simulation” as a teaching and learning form. Subsequently, it turns to the significance assigned to driving simulation training in the systems of novice driver preparation, and the manner in which such training is integrated into the system structures. These questions are to be answered by taking the examples of Finland, the Netherlands and the Czech Republic.

It must be mentioned in advance, that training by way of a driving simulator is not a mandatory component of driver training in any of the 44 countries covered by the present report. Where it is used as an optional teaching/learning form, it is generally an element of formal driving school training and is conducted under the supervision of a professional driving instructor. Overall, relatively little use is made of technically complex driving simulators as a teaching/learning medium. According to the estimates provided by experts, they are used by less than one per cent of novice drivers in Belgium, by less than five per cent in Great Britain and Ontario (Canada), by 15 per cent in the Netherlands and by 30 per cent in Slovakia. This use generally pertains to a certain number of driving lessons being taken on the driving simulator.

Driving simulators as a teaching/learning medium

The extent to which a driving simulation achieves a realistic presentation of traffic-specific demand situations is dependent above all on the technical features of the simulator. The following are characteristic elements of a driving simulator:

- the “vehicle mock-up”, with which the driver’s sitting position is simulated; this could be a complete vehicle or just a simple chair;
- the “vehicle model”, with which correlations and interactions between driving behaviour (e.g. steering) and the surrounding environment (e.g. a change in the visible image detail) can be simulated (a “motion system” is able to give the novice driver a physically sensed impression of vehicle response, and thus potentially the feeling of a realistic driving situation);

- the “traffic model”, with which the behaviour of other road users is simulated;
- the “display”, for example a monitor or projection screen, with which certain situations can be simulated from the driver’s perspective;
- the “scenario”, which defines the traffic situations which the driver encounters during the simulation.

The countries presented as examples in the following make use of technically advanced simulators. Certain driving and traffic demands, however, could also be simulated with technically less sophisticated systems where the intention is to train only partial competences (e.g. traffic perception, hazard recognition). Corresponding possibilities were mentioned in Chapter 3.2.3 as teaching/learning media for independent theory learning in the field of traffic perception training. The technical prerequisites for the use of such driving simulations are met by the typical graphics capabilities of any modern PC.

Czech Republic (NBR):

In the Czech Republic, it is possible to train on a driving simulator before commencing practical driving instruction, i.e. before driving in real traffic. This training is integrated into formal driving training in the sense that the novice driver can choose to complete up to 10 of the prescribed 28 hours of practical driving instruction on a driving simulator. This possibility is dependent on the technical features of the available simulator, for which four levels of equipment are distinguished. The option of replacing mandatory practical driving instruction with driving simulation training is only available where the driving simulator used meets certain (high) configuration demands. The simulators used in the Czech Republic usually consist of a vehicle cockpit, a steering wheel, a gear stick and a motion system. Driving simulation training is generally used to teach skills relating to vehicle operation, traffic observation, the performance of specific driving manoeuvres, compliance with traffic signs and rules, and the mastering of risk situations.

Netherlands (NBR/REF):

In the Netherlands, too, driving simulation is usually used at the beginning of driver training, i.e. before driving in real traffic. The driving simulators were developed by the company “Green Dino”⁴⁰, in cooperation with competent experts (for example from the Delft University of Technology).

⁴⁰ <http://www.greendino.nl> (2 September 2011)

The training content is determined by the specifications of the curriculum for driver training. The novice driver is guided through the training by a “virtual instructor”. On the basis of an evaluation of driving behaviour data recorded during the simulator sessions (including, for example, visual attention), the novice driver receives detailed feedback on the displayed performance (“Report of Strengths & Weaknesses”). This feedback provides objective information not only to the novice driver, but also to the driving instructor. The evaluated driving behaviour is compared to the driving simulator results for around 10,000 other novice drivers and classified according to certain interesting parameters (e.g. learning pace). This is intended, on the one hand, to convey an experience of success, and on the other hand as motivation for further efforts to improve driving skills. The simulators used consist of a vehicle cockpit, a steering wheel, a gear stick and a motion system.

Finland (REF)

In Finland, a driving simulator may be used for the training course units on driving in the dark. The simulators and training modules are developed by the company “ECA FAROS”⁴¹ in cooperation with the Finnish driving instructors’ association. The aim of the module “Driving in the dark” is that the novice driver should learn and practice traffic observation, speed regulation, vehicle positioning and the compliance with traffic rules under the special conditions of darkness. The training content covers aspects such as overtaking, being overtaken and the interaction with pedestrians. Each training unit comprises an introduction, a demonstration and practice drives. A test made up of different driving exercises serves to determine learning success. At the end of the module, individual feedback is provided in the form of a written report.

To summarise, it can be said that technically sophisticated driving simulators are currently only seldom used in connection with novice driver preparation. In view of the high costs involved for the use of this teaching/learning medium, it is unlikely that this situation will change in the immediate future. PC-based driving simulations, on the other hand, are already today a widely available opportunity to train relevant partial competences necessary for the mastering of driving tasks.

3.2.7 Accompanied driving

The teaching/learning form “Accompanied driving” enables novice drivers to acquire driving expertise beyond the initial competence acquired within the framework of basic practical driving instruction. The requirement of accompaniment ensures that this learning process can take place in a low-risk situation. The private, non-commercial character of accompanied driving – alongside the correspondingly favourable cost implications – is here the decisive economic prerequisite for realisation of extensive practical driving experience with a minimum exposure to risk (see Chapter 2.3.2).

The following description of accompanied driving in the individual countries and groups of countries determines the general availability of this form of teaching/learning, and the extent to which such measures are used, where appropriate. In this connection, it is furthermore important to consider the duration and scope of driving experience achieved by way of this teaching/learning form, and the manner in which it is integrated into the system of novice driver preparation alongside professional driver training. Finally, it is interesting to examine the prerequisites which must be met by the novice driver and the proposed accompanist in order to participate in accompanied driving, as an informal form of teaching/learning, and which general conditions apply to limit the risk involved for the novice driver and other road users during this driving practice.

The aim of the following section “Availability of measures and proportion of users” is firstly to identify the countries in which privately supervised driving practice before the commencement of solo driving is actually legally permissible, and subsequently to compare the proportions of novice drivers who take advantage of this possibility.

Availability of measures and proportion of users

Table 11 provides an overview of the countries in which driving practice under the supervision of a lay trainer is possible, and at the same time indicates those countries in which there is no legal basis for use of the teaching/learning form “Accompanied driving”. Where information is available, the table also specifies the proportions of novice drivers who use accompanied driving to gain practical experience.

⁴¹ <http://www.ecafaros.com> (2 September 2011)

Country	Group	Proportion of users	Stipulations governing the duration of use			Scope of experience
			Commencement	End	Time window (period)	
D	WEU	~35%	From 17 yrs	From 18 yrs	Up to 12 mos.	~2400 km/ 7-8 mos.
E	WEU	<1%	From 17 yrs	From 18 yrs	Up to 12 mos.	
GB	WEU	~55%	From 17 yrs	From 17 yrs	Learner DL unlimited	~320 km
I	WEU	~8%	From 18 yrs	From 18 yrs	Max. 6 mos.	
F	WEU/NBR	~28%	From 16 yrs	From 18 yrs	Min. 12, max. 36 mos.	Min. 3000 km
B	NBR	~50%	From 17 yrs	From 18 yrs	Learner DL 3-36 mos.	
CH	NBR	>90%	From 18 yrs	From 18 yrs	Learner DL 24 mos.	~23 hrs
CZ	NBR		No "accompanied driving"			
DK	NBR		No "accompanied driving"			
L	NBR	~20%	From 17 yrs	From 18 yrs	Learner DL 2-36 mos.	~300-3000 km
PL	NBR		No "accompanied driving"			
A	NBR/REF	~20%	From 16 yrs	From 17 yrs	Up to 12 mos.	Min. 3000 km
NL	NBR/REF		No "accompanied driving"			
FIN	REF	~10-20%	From 17;6 yrs	From 18 yrs	Learner DL max. 9 mos.	~1000 km
N	REF	~70-82%	From 16 yrs	From 18 yrs	Up to 24 mos.	~2300 km
S	REF	~90%	From 16 yrs	From 18 yrs	Up to 24 mos.	~73 hrs / ~3-24 mos.
BG	-		No "accompanied driving"			
CY	-		From 17;6 yrs	From 18 yrs	Learner DL 1-12 mos.	
EST	-	~5%	From 16 yrs	From 18 yrs	Up to 24 mos.	
GR	-		No "accompanied driving"			
H	-		No "accompanied driving"			
HR	-		No "accompanied driving"			
IL	-		From 17 yrs	From 17;3 yrs	Min. 3 mos.	
IRL	-		From 17 yrs	From 17;6 yrs	Min. 6, max. 24 mos.	
IS	-	~80%	From 16 yrs	From 17 yrs	Up to 12 mos.	~6-8 mos.
LT	-	~50%	From 17 yrs	From 18 yrs	Up to 12 mos.	
LV	-	~80%	From 16 yrs	From 18 yrs	Up to 24 mos.	
M	-		From 18 yrs	From 18 yrs	Learner DL 12 mos.	
P	-		No "accompanied driving"			
RO	-		No "accompanied driving"			
RUS	-		From 16 yrs	From 18 yrs	Up to 24 mos.	
SK	-		No "accompanied driving"			
SLO	-		From 16;6 yrs	18	Up to 18 mos.	
TR	-					
AUS/NSW	GDL	~100%	From 16 yrs	From 17 yrs	Min.12 mos.	Min.120 hrs
AUS/QLD	GDL		From 16 yrs	From 17 yrs	Min.12 mos.	Min. 100 hrs
AUS/VIC	GDL		From 16 yrs	From 18 yrs	Min.12 mos.	Min. 120 hrs
CDN/NS	GDL		From 16 yrs	From 16;3 yrs	Min. 6 or 3 mos.	
CDN/ON	GDL	~100%	From 16 yrs	From 16;8 yrs	Min. 12 or 8 mos.	
CDN/QC	GDL	~100%	From 16 yrs	From 17 yrs	Min. 12 mos.	
NZ	GDL		From 15 yrs	From 15;6 yrs	Min. 6 mos.	~50 hrs
USA/CA	GDL		From 15;6 yrs	From 16 yrs	Min. 6 mos.	Min. 50 hrs
USA/FL	GDL		From 15 yrs	From 16 yrs	Min.12 mos.	Min. 50 hrs
USA/NC	GDL		From 15 yrs	From 16 yrs	Min. 12 mos.	

Tab. 11: Accompanied driving – Proportion of users, stipulations governing the duration of use and scope of experience gained ("hrs" = hours; "mos." = months; "yrs" = years; "DL" = driving licence; "~" = study result/expert estimation ; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

As can be seen from Table 11, lay persons are permitted to contribute to novice driver preparation in all the major West European countries. Under the German and French systems, however, the teaching/learning form “Accompanied driving” can only be chosen as an optional training model, as an alternative to training exclusively in a driving school. In Germany, the proportion of novice drivers participating in the “BF17” model was around 35 per cent in 2008 (for an overview: WILLMESLENZ, GROSSMANN & PRÜCHER, 2009), compared to approx. 28 per cent of French novice drivers who, according to the information given by experts, made use of the model “Apprentissage anticipé de la conduite”. Among the major West European countries, the highest proportion of novice drivers gaining driving practice under the supervision of a lay accompanist is to be found in Great Britain, namely around 55 per cent. No information is available on the proportion of novice drivers who also make use of this possibility to build practical driving experience beyond the acquisition of initial competence. In Spain, accompanied driving is of only marginal significance, not least due to the rarely satisfied conditions for participation (e.g. use of a vehicle with dual controls).

In the groups of neighbouring countries around Germany and reform-oriented countries, the majority of the national systems establish a legal framework for practice under the supervision of a lay trainer. It is only in the Czech Republic, Denmark, Poland and the Netherlands that practical driving instruction under the supervision of a professional driving instructor is the only permissible teaching/learning form by which to gain driving practice in real traffic.

It is furthermore revealed by Table 11 that around half of the novice drivers in Belgium acquire a learner driving licence in order to be able to practice driving under the supervision of a lay trainer, whereas the equivalent figure in Switzerland is even over 90 per cent of novice drivers. In Austria, accompanied driving is bound to selection of the “L17” training model, under which professional practical driving instruction is followed by a prescribed minimum of 3,000 kilometres of accompanied driving and attendance at parallel training seminars. Approx. 20 per cent of novice drivers in Austria choose this training model as an alternative to training exclusively in a commercial driving school. In Luxembourg, too, the teaching/learning form “Accompanied driving” can only be used as part of a corresponding training model, which is similarly chosen by around 20 per cent of novice drivers. A relatively high rate of participation in

accompanied driving can be derived from Table 11 for Norway and Sweden.

In the GDL countries, practical driving instruction under the supervision of a lay trainer and accompanied driving are the decisive forms of competence acquisition for novice drivers, whereas participation in formal training measures is predominantly optional. The legal regulations in these countries stipulate certain minimum periods and scopes of practical driving experience, and these requirements thus constitute a general framework for the longer-term development of driving experience for all novice drivers. On the basis of those countries for which expert information on the actual use of measures is available, it is evident that practically all novice drivers make use of the teaching/learning form “Accompanied driving”. In the Canadian province of Ontario, around 55 per cent of novice drivers complete their practical driving instruction exclusively in the form of accompanied driving. The remaining 45 per cent of novice drivers also attend optional formal driver training.

Duration and scope of practical driving experience

The purpose of accompanied driving is to enable the most extensive possible practical driving experience, as this determines the level of expertise achieved by the time of the novice driver's transition to solo driving. To assess the existing prerequisites for such extended driving practice, it is initially necessary to consider the framework of legal conditions which govern the duration and scope of accompanied driving. In addition, reference is to be made – where available – to empirical data or expert estimations on the scope of practical driving experience gained (distance driven, number of hours).

In some countries, the minimum age specifications for the commencement of accompanied and solo driving define a window (see Table 11) which in turn determines the maximum possible period of use for this form of teaching/learning (based on the assumption that the novice driver commences solo driving immediately upon reaching the prescribed minimum age). A number of driver licensing systems also contain regulations defining a minimum scope of accompanied driving in the form of specifications relating to the distance driven, a minimum number of hours of driving practice or a minimum duration for the phase of accompanied driving.

Among the major West European countries, a minimum scope of accompanied driving is only stipulated in France: Novice drivers must there accumulate at least 3,000 kilometres of driving practice. In Germany, participants in the “BF17”

model are merely recommended to acquire as much practice as possible. If the earliest possible entry point is chosen, namely immediately upon reaching the age of 17 years, this leaves a window of 12 months for accompanied driving; taking into account the prior professional practical driving instruction, which can begin at an age of 16.5 years, the maximum period of learning before the transition to solo driving is 18 months. According to empirical studies, the average distance driven by "BF17" participants is around 2,400 kilometres, spread over a period of 7 to 8 months (FUNK et al., 2010). In Great Britain and Italy, the legal regulations permit practical driving instruction by lay trainers, and consequently enable a scope of driving practice which goes beyond the mere acquisition of initial competence. The possibilities, however, are apparently not exploited to the full in practice; given the identical minimum ages for the commencement of accompanied driving and the granting of a driving licence (see the columns "Commencement" and "End" in Table 11), there is no motivation to make use of a longer period of preparation before obtaining a driving licence. In Great Britain, the amount of driving typically accumulated by way of supplementary private practical preparation is estimated to be 320 kilometres by WELLS, TONG, SEXTON, GRAYSON und JONES (2008). According to a survey among novice drivers, the scope of practice acquired in the context of lay training lies at around 20 hours, whereas approx. 52 driving lessons are taken with a professional driving instructor. Around 32 per cent of the novice drivers reported a total of less than 500 kilometres of driving over the period before taking the driving test, while around 10 per cent indicated driving practice in excess of 3,000 kilometres.

In the group of neighbouring countries around Germany, Belgium and Switzerland permit novice drivers to learn exclusively under the supervision of a lay trainer after obtaining a learner driving licence, or else to combine such lay training with commercial driver training offers. The learner driving licence is valid for up to 24 months in Switzerland or for up to 36 months ("36M" model) in Belgium. In Belgium, the minimum age for granting of a learner driving licence is 17 years, and the novice driver must be 18 years of age to take the driving test and commence solo driving. This rule probably serves to promote a longer duration of practical driving preparation; empirical data on the distances driven under accompanied driving, however, are not available. In Switzerland, most novice drivers combine learning under the supervision of a professional driving instructor with lay training. Driving practice of approx. 18 hours is acquired

within the framework of professional instruction. An average of around 23 hours of additional driving is done under the supervision of a lay trainer, though the results of an empirical survey indicate that a proportion of the novice drivers records significantly more extensive practice, namely up to 200 hours (EU Project BASIC, 2003). As in Italy and Great Britain, the minimum age for the granting of a learner driving licence is also identical to the minimum age for the commencement of solo driving in Switzerland, which means that there is likewise no motivation for a young licence applicant to opt for a longer period of practical driving preparation. In Luxembourg, accompanied driving is available to participants in the corresponding training model ("AC" model) for the maximum period of validity of the learner driving licence, namely 36 months. A minimum period of use of eight weeks is specified, but no minimum driving distance is prescribed. According to the information provided by experts, the earlier start of mandatory driver training results in a period of use of around 12 months, during which the novice drivers cover between 300 and 3,000 kilometres.

With the exception of the Netherlands, accompanied driving is a component of novice driver preparation in all reform-oriented countries. In Austria, this teaching/learning form can only be used if the novice driver chooses the training model "L17". This model requires that, after professional practical driving instruction (at the earliest from the age of 16 years), the novice driver completes at least 3,000 kilometres of accompanied driving during the year up to his 17th birthday in order to be permitted to drive solo after passing a driving test and reaching the minimum age of 17 years. Norway and Sweden similarly enable longer-term driving experience acquisition by reducing the minimum age for the commencement of practical driving instruction to 16 years. In Norway, it is a mandatory requirement to attend certain formal training elements in a professional driving school (e.g. basic theoretical course, evaluation driving lessons); practical driving instruction with a lay trainer and accompanied driving are widely practised, as a means to permit novice drivers to gain more extensive experience. Between 70 and 80 per cent of novice drivers in Norway make use of this possibility, and thereby record an average of 2,300 kilometres of additional driving practice (TRONSMOEN, 2011). Professional practical driving instruction is not prescribed in Sweden; it is only necessary for all novice drivers to attend a three-hour course on hazard avoidance before taking the driving test (and, where appropriate, a theoretical introductory course as a prerequisite for

accompanied driving). Around 90 per cent of novice drivers take the opportunity to practise under the supervision of a lay trainer, and thus to extend their practical driving experience through accompanied driving. They drive distances of approx. 4,000 kilometres during an average of 112 hours of driving (TRONSMOEN, 2011); the overall duration lies between 3 and 24 months.

In the GDL countries, it is usual to specify a minimum duration for the supervised learning phase, during which the novice driver is only permitted to drive with accompaniment. A duration of 12 months is prescribed in the Australian states of New South Wales, Queensland and Victoria, in the Canadian provinces of Ontario and Québec and in the US states of Florida and North Carolina; in the remaining GDL countries, the corresponding period is shorter. In Ontario, the regular minimum duration can be shortened to 8 months by attending an approved "Driver Education Course". In Victoria, the minimum period of 12 months applies only for novice drivers under 21 years of age; solo driving is here permitted at the earliest from the age of 18 years, but accompanied driving already from 16 years. A minimum number of hours of driving may also be specified, alongside the minimum period of preparation in months, for example 120 hours in New South Wales and Victoria, or 100 hours in Queensland. A minimum of 50 hours of practice must be completed in Florida and California.

Combination with formal driver training

"Accompanied driving" can be combined with formal driver training offers in various different ways (see right-hand column of Table 12). Three basic forms of such combination have evolved: Defined integration of accompanied driving into professional driving school training ("integrative model", e.g. France and Austria), separate realisation of accompanied driving after completion of formal driving school training ("consecutive model", e.g. Germany) and free combination at the individual discretion of the user ("liberal model", e.g. Sweden and Norway).

For the group of major West European countries, it can be determined that Germany and France implement accompanied driving as an optional preparation model following on from professional driver training. In Germany, formal training and accompanied driving are completely separate elements of novice driver preparation. The driving test must be passed before commencing accompanied driving, whereby the novice driver already acquires the status of legally responsible driver of the vehicle. Accompanied driving in Germany can thus be

assigned to the consecutive model type. Within the framework of the integrative French model, the novice driver completes practical driving instruction in a driving school, but is already permitted to commence accompanied driving after passing a knowledge test. Two mandatory training sessions ("feedback meetings") must be attended at the driving school during the accompanied driving phase, namely after 1,000 and after 3,000 kilometres. They are to be understood as supplementary components of the driver training, the first phase of which – prior to the commencement of accompanied driving – can already be considered to satisfy the demands of a complete process of driver preparation⁴² as it also applies for novice drivers who do not participate in accompanied driving. The mandatory training sessions, which novice drivers must attend together with their accompanist, comprise a joint reflection of their experiences during accompanied driving (two hours) and a one-hour drive in real traffic. The driving test which leads to granting of a driving licence and acquisition of the status of legally responsible driver of the vehicle is not taken until after the accompanied driving phase. Under the liberal models followed in Great Britain, Spain and Italy, accompanied driving is combined with professional driver training at the individual discretion of the novice driver.

Turning to the neighbouring countries around Germany and the reform-oriented countries, Luxembourg and Austria are found to implement integrative models of accompanied driving. In both countries, accompanied driving is preceded by professional driving school training, which is then continued during the accompanied phase in the form of parallel course units. In Austria, the novice drivers and their accompanists attend mandatory intermediate meetings in a driving school after 1,000 and after 2,000 kilometres. As in France, these sessions comprise a discussion of experiences during accompanied driving and a "training drive". In Luxembourg, novice drivers must attend four final course units in a driving school at the end of the accompanied driving phase, before taking the driving test. The accompanist, furthermore, is required to have participated in two practical driving lessons within the framework of the novice driver's driving school training. Novice drivers in Sweden are not required to attend a (full) course of professional driving school training. Before com-

⁴² Even though the driving test is not taken until after the accompanied driving phase, it is a decisive prerequisite for the commencement of accompanied driving that the novice driver has already during the prior formal driver training achieved a level of driving skill which would be sufficient to master the demands of the driving test.

mencing accompanied driving, however, they must complete a three-hour introductory theory course together with their accompanist. In Norway, too, (full) professional driving school training is not prescribed; the traditional lay driver training and accompanied driving are nevertheless supplemented by mandatory elements of formal training (e.g. theoretical “basic course”, “evaluation lessons”). The close integration of formal training components and conventional informal teaching/learning forms is anchored in the training curriculum (see Chapter 3.2.5). It is prescribed, for example, that a basic theory course comprising 17 course units (including first-aid measures) must be completed with a professional driving instructor, before being allowed to commence practical driving under the supervision of a lay trainer (or professional driving instructor).

Novice drivers in Norway must furthermore attend two evaluation lessons and driving safety training with a professional driving instructor. This serves to monitor and ensure attainment of the learning objectives stipulated in the curriculum. Accompanists are also recommended to attend professional training sessions, and the responsible driving school is expected to make this possible.

Among the GDL countries, there is no legal requirement to make use of additional formal training offers in New Zealand, in the Australian states of New South Wales, Victoria and Queensland, and in the Canadian provinces of Nova Scotia and Ontario. In the Canadian province of Québec, on the other hand, all novice drivers must attend formal driving school training. The manner in which privately arranged practical driving instruction – during a supervised learning phase of (at least) 12 months – is combined with the formal training components is governed by a corresponding curriculum (see Chapter 3.2.5). In the US states of California and North Carolina, formal instruction (“Driver Education”) must be taken before commencing accompanied driving; in Florida, novice drivers must attend a four-hour theory course.

Table 12 presents an overview of the ways in which accompanied driving and formal driver training are combined. In addition, it provides indication of the prerequisites to be met by novice drivers and accompanists in the different systems of novice driver preparation; these prerequisites for accompanied driving are discussed in the following section.

Prerequisites for novice drivers and accompanists

All countries require the novice driver to have reached a legally stipulated minimum age before

being allowed to commence accompanied driving. In many cases, it is also necessary to have previously completed (full) driving school training or another specified course of driver training (see “Combination with formal driver training” above). It is furthermore a common prerequisite that the novice driver has passed a knowledge test, whereas the passing of a driving test is only prescribed in a few individual cases (e.g. in Germany).

Among the major West European countries, the lowest minimum age for the start of the accompanied phase is found in France, namely 16 years (which at the same time results in the longest period – up to 24 months – before the earliest possible transition to solo driving at 18 years). The minimum age in Germany is 17 years; passing of both theoretical and practical driving tests after completion of professional driving school training is moreover a second core prerequisite for participation in accompanied driving. In the neighbouring countries Belgium and Luxembourg, novice drivers can commence accompanied driving at the age of 17 years. In Switzerland, by contrast, both training in a driving school and driving practice under the supervision of an experienced lay person are only permitted from 18 years. The minimum age in the reform-oriented countries Austria, Norway and Sweden is 16 years. Whereas Austria permits the transition to solo driving already at 17 years, novice drivers in Norway and Sweden must wait until they reach the age of 18 years to drive solo. In the GDL countries, the required minimum age is everywhere 16 years or less.

The prescribed minimum age of the accompanist is highest in Germany, at 30 years, and lowest in Great Britain, at 21 years. With regard to the minimum period of prior driving licence possession, Italy tops the list with 10 years; Great Britain is here again the country with the lowest threshold, namely three years. In the groups of neighbouring countries around Germany and reform-oriented countries, the minimum age is highest in Austria (27 years) and lowest in Finland (21 years). As proof of prior experience, Belgium has the strictest system, demanding that a driving licence has been held for 8 years, whereas Switzerland sets the lowest requirement with only three years. The least demands in terms of the minimum age and period of driving experience of the accompanist are to be found in the GDL countries.

Country	Group	Prerequisites for novice drivers					... for accompanists			Combination of accompanied driving with formal driver training A = Prior driver training B = Parallel training elements
		Minimum age of ... years	Minimum number of theory classes ¹	Minimum units of practical driving instruction ¹	Passed knowledge test	Passed driving test	Minimum age of ... years ¹	Driving licence since ... years	Related to the novice driver	
D	WEU	17	14	> 12	X	X	30	5	-	A (complete)
E	WEU	17	-	-	-	-	25	5	X	-
GB	WEU	17	-	-	-	-	21	3	-	-
I	WEU	18	-	-	-	-	28	10		-
F	WEU/NBR	16	-	20	X	-	28	5	-	A (complete); B (2 intermediate meetings)
B	NBR	17	-	-	X	-	*26	8	-	-
CH	NBR	18	-	-	X	-	23	3	-	-
CZ	NBR	No "accompanied driving"								
DK	NBR	No "accompanied driving"								
L	NBR	17	12	12	X	-	24	6	X	A (complete); B (4 final training units)
PL	NBR	No "accompanied driving"								
A	NBR/REF	16	32	12	-	-	*27	7	X	A (complete); B (2 intermediate meetings)
NL	NBR/REF	No "accompanied driving"								
FIN	REF	17;6	-	-	-	-	21	3	-	-
N	REF	16	17	-	-	-	25	5	-	A (basic course); B (2 evaluation lessons)
S	REF	16	3	-	-	-	24	5	-	A (introductory theory course)
BG	-	No "accompanied driving"								
CY	-	17;6	-	-	X	-	30	5	-	-
EST	-	16	41	32	X	X		5		A (complete)
GR	-	No "accompanied driving"								
H	-	No "accompanied driving"								
HR	-	No "accompanied driving"								
IL	-	17	-	28	X	X	24/30	5/3		A (complete)
IRL	-	17	-	-	X	-	*19;6	2	-	B (12 hrs "Essential Driver Training")
IS	-	16	12	10	-	-	24	5	-	A (part of mand. training); B (4 final units)
LT	-	17	60	20	-	-	*23	5	X	A (complete)
LV	-	16	-	-	-	-	21	3		-
M	-	18	-	-	-	-	25	5	-	-
P	-	No "accompanied driving"								
RO	-	No "accompanied driving"								
RUS	-	16			-	-	*21	3	-	-
SK	-	No "accompanied driving"								
SLO	-	16;6	40	20	-	-	30	7	X	A (complete); B (2 x 2 hrs during training)
TR	-									
AUS/NSW	GDL	16	-	-	X	-	21	3	-	-
AUS/QLD	GDL	16	-	-	X	-	*21	1	-	-
AUS/VIC	GDL	16	-	-	X	-	*22	-	-	-
CDN/NS	GDL	16	-	-	X	-	*20	2	-	-
CDN/ON	GDL	16	-	-	X	-	*20;8	4	-	-
CDN/QC	GDL	16	5	-	X	-	*21	2	-	A (theory) and B (practical instruction)
NZ	GDL	15	-	-	X	-	19	2	-	-
USA/CA	GDL	15;6	30	6	X	-	25	-	-	A (complete)
USA/FL	GDL	15	4	-	X	-	21	-	-	A (theory "TLSAE", "DATA", or the like)
USA/NC	GDL	15	30	6	X	-	*23	5	X	A (complete)

Tab. 12: Accompanied driving – Prerequisites for novice drivers and accompanists, and combination with driver training ("hrs" = hours; "*" = minimum age derived; "X" = applicable; "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ The figures indicate the number of mandatory course units in each case. The prescribed duration of a course unit may vary from country to country; detailed specifications are to be found in Chapters 3.2.2 (Tab. 6) and 3.2.4 (Tab. 9).

Alongside the minimum age and the period of driving licence possession, the social relationship between the novice driver and accompanist also plays a role in some countries. As can be seen from Table 12, some countries (e.g. Luxembourg, Lithuania, Slovenia) stipulate that the novice driver and accompanist must be family relatives as a prerequisite for participation in accompanied driving. Austria similarly demands a “close relationship” between the accompanist and novice driver. The restriction to family relatives could limit the equal accessibility of accompanied driving for novice drivers. In Germany, therefore, the accompanist must not necessarily be a family relative of the novice driver; there is furthermore no limit on the number of persons who may be nominated as accompanists. In France, too, the accompanist must not always be the same person.

An appropriate driving record can be mentioned as a further prerequisite to be met by the accompanist. In Germany, the accompanist must not have received more than three demerit points in the central register of traffic offenders as punishment for traffic offences. In Belgium, his driving licence must not have been withdrawn during the past three years. In Ontario, the accompanist must demonstrate at least four years of driving experience; any periods during which the driving licence has been withdrawn, however, are not taken into account. Demerit points in the central offenders register, on the other hand, are not alone a reason for exclusion.

Restrictions and special conditions applicable to accompanied driving

In addition to the aforementioned personal prerequisites to be met by the novice driver and accompanist, there are often further restrictions and special conditions which are applicable to accompanied driving (see Table 13 on next page); these restrictions and special conditions are described in more detail in the following.

Vehicle features and marking:

In some countries, the vehicle used for accompanied driving must meet certain equipment and feature requirements. It is usually necessary – both for formal practical driving instruction and for the phase of accompanied driving – for the vehicle to be marked accordingly (see Table 13). In Austria, for example, the vehicle must be identified by way of light-blue plates with “L17” as white text both on the front and on the back, together with a white sign with the word “Ausbildungsfahrt” (“training

drive”) in black letters. In Belgium, the vehicle must be marked with an “L” on the rear window, and it must be fitted with a second rear-view mirror. Marking with an “L” sign is similarly prescribed in Switzerland, Ireland and Spain. In Finland, the marking used is a white triangle.

A number of countries (e.g. Belgium, Spain, France, Finland) require the vehicle to be fitted with additional mirrors for the accompanist. Technical provisions may also be stipulated to enable the accompanist to intervene in the learner’s driving if necessary. In Austria, for example, it is only permitted to use a vehicle in which the hand brake and ignition are within reach of the passenger seat. In Spain and Finland, dual controls (additional brake, accelerator and clutch pedals on the passenger side) are prescribed.

Driving restrictions for certain roads and times of the day:

Special regulations are found in certain countries with regard to the routes and road types on which driving is permitted, as well as the permissible speed limits. In some cases, accompanied driving is also not allowed at weekends or at particular times of the day (see Table 13). In Belgium, for example, accompanied driving is not permitted between 10 p.m. and 6 a.m. on Fridays, Saturdays and Sundays, as well as on public holidays and the day before such holidays. In Spain, a similar restriction refers to the use of motorways for accompanied driving on public holidays and the evening before public holidays. In Great Britain and Ireland, motorway driving is completely forbidden. In Spain, special speed limits apply: 80 km/h (instead of 120 km/h) on trunk roads and motorways, 80 km/h (instead of 90 km/h) on roads outside built-up areas, and 40 km/h (instead of 50 km/h) inside built-up areas. In the Canadian province of Ontario, accompanied driving is prohibited between midnight and 5 a.m.; in addition, the novice driver is not permitted to drive on motorways and certain trunk roads with a maximum speed limit of more than 80 km/h. In the Australian state of New South Wales, a local driving exclusion applies for Centennial Park in Sydney. Novice drivers in Switzerland are not permitted to drive on roads with dense traffic until they have reached a corresponding level of ability, while trunk roads and motorways remain excluded until the novice driver is “ready for the driving test”. Many countries also expressly prohibit journeys abroad (e.g. Belgium, France, Norway, Latvia).

Country	Group	No driving on certain roads	No driving at weekends	No driving at night	Speed restrictions	Marking of the vehicle	No driving abroad	Supplementary insurance cover	Restrictions relating to passengers	Handbrake must be within reach	Vehicle with dual controls	Additional mirrors	Additional remarks
D	WEU	-	-	-	-	-	-	-	-	-	-	-	-
E	WEU	X	X	X	X	X	-	X	-	-	X	X	-
GB	WEU	X	-	-	-	X	-	X	-	-	-	-	-
I	WEU	-	-	-	-	X	-	-	-	X	-	-	-
F	WEU/NBR	-	-	-	X	X	X	X	-	-	-	X	Logbook
B	NBR	-	X	X	-	X	X	-	X	X	-	X	-
CH	NBR	X ¹	-	-	-	X	-	-	-	X	-	-	¹ Motorway only when "ready for test"
CZ	NBR	No "accompanied driving"											
DK	NBR	No "accompanied driving"											
L	NBR	-	-	X	X	X	X	X	-	-	-	X	Logbook
PL	NBR	No "accompanied driving"											
A	NBR/REF	-	-	-	-	X	-	-	-	X	-	-	Logbook
NL	NBR/REF	No "accompanied driving"											
FIN	REF	-	-	-	-	X	-	-	-	-	X	X	-
N	REF	-	-	-	-	X	X	-	-	X	-	X	-
S	REF	-	-	-	-	X	X	-	-	-	-	-	-
BG	-	No "accompanied driving"											
CY	-	-	-	-	-	X	-	-	X	-	-	-	-
EST	-	No "accompanied driving"											
GR	-	No "accompanied driving"											
H	-	No "accompanied driving"											
HR	-	No "accompanied driving"											
IL	-	-	-	-	-	X	-	-	-	-	-	-	-
IRL	-	X	-	-	-	X	X	-	-	-	-	-	-
IS	-	-	-	-	-	X	X	-	-	-	-	-	-
LT	-	-	-	-	-	X	-	X	-	X	-	-	-
LV	-	-	-	-	-	X	X	-	-	X	-	-	-
M	-	-	-	-	-	X	-	X	-	-	-	-	-
P	-	No "accompanied driving"											
RO	-	No "accompanied driving"											
RUS	-	X	-	X	X	X	-	-	-	-	-	-	-
SK	-	No "accompanied driving"											
SLO	-	-	-	-	-	X	-	X	-	-	-	-	-
TR	-	No "accompanied driving"											
AUS/NSW	GDL	X	-	-	X	X	-	-	-	-	-	-	-
AUS/QLD	GDL	-	-	-	-	X	-	-	-	-	-	-	-
AUS/VIC	GDL	-	-	-	-	X	-	-	-	-	-	-	Logbook
CDN/NS	GDL	-	-	-	-	-	-	-	X	-	-	-	-
CDN/ON	GDL	X	-	X	-	-	-	-	X	-	-	-	-
CDN/QC	GDL	-	-	-	-	-	-	-	-	-	-	-	-
NZ	GDL	-	-	-	-	X	-	-	X ²	-	-	-	² Additional passengers with consent of the accompanist
USA/CA	GDL	-	-	-	-	-	-	-	-	X	-	-	-
USA/FL	GDL	-	-	X ³	-	-	-	-	-	-	-	-	³ During first 3 months
USA/NC	GDL	-	-	X ⁴	-	-	-	-	-	-	-	-	⁴ During first 6 months

Tab. 13: Accompanied driving – Restrictions and special conditions applicable to accompanied driving ("X" = applicable; "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Restriction on number of passengers:

In some countries, restrictions apply with regard to further passengers in the vehicle during accompanied driving. Only the novice driver and the accompanist are allowed to be in the vehicle in Cyprus, while Belgium allows one additional passenger. In the Canadian province of Ontario, only the accompanist is allowed to sit in the front passenger seat; further back-seat passengers are permitted, provided a safety belt is available for each passenger. In New Zealand, additional passengers may only be present in the vehicle with the consent of the accompanist (see Table 13).

Documentation by way of a logbook:

Some countries require that accompanied driving be documented in a logbook. In Luxembourg, the accompanist must keep a record of learning progress, and must then present this record to the driving instructor with whom the novice driver completes his four final training units before taking the driving test. The test examiner also receives the record. The scope of practice and learning progress must similarly be recorded in a logbook in France and Austria. In Victoria, the novice driver keeps a so-called "Learner Log Book", which must be presented when taking the driving test. This logbook serves to document the driving done and includes a declaration by which the novice driver must confirm with his signature that the prescribed minimum hours of driving have been completed. In addition, all accompanists (including the professional driving instructor, where appropriate) must be entered with their name. For each session of driving practice, the date, total duration, start and end times and kilometres driven must be noted. Further information to be specified – in standardised form – refers to the traffic density ("Light", "Moderate", "Heavy"), the weather conditions ("Wet", "Dry"), the light conditions ("Day", "Dusk", "Night") and the types of roads used ("Residential", "Main roads", "Inner-city roads", "Freeway", "Rural highway", "Other rural roads", "Gravel roads"). In New South Wales, too, a logbook must be kept by the novice driver and presented for inspection by the examiner when taking the driving test. In Florida, the accompanist must give written confirmation that the prescribed minimum of 50 hours of driving has been completed; the keeping of a logbook is furthermore expressly recommended.

Further restrictions:

Some countries have adopted regulations with regard to the permissible blood alcohol content of the accompanist. In Victoria and Ontario, for example, a blood alcohol limit of 0.05 per cent is prescribed for the accompanist; the reasoning here is that the accompanist must be in a position to

intervene in the learner's driving, if necessary. In some countries, novice drivers are still not permitted to use a mobile telephone during accompanied driving, even if a hands-free device is available. In Great Britain, Ireland, Spain, Belgium and Finland, driving with a trailer is forbidden. In some cases, furthermore, supplementary insurance must be obtained to cover the special situation of driving practice under the supervision of a lay person (e.g. in Spain, France and Malta).

Content specifications and recommendations:

Accompanied driving is governed to a lesser extent by formal rules than professional driver training; binding content-related specifications and recommendations are nevertheless found in some cases. In the Australian state of Victoria, for example, it is stipulated that at least 10 of the prescribed 120 hours of driving practice must be completed in the dark. In the Canadian province of Québec, recommendations are given in respect of the content of driving practice. This content is aligned to the mandatory course units which are completed within the framework of formal driver training (see Chapter 3.2.5), as accompanied driving is intended to consolidate the acquired skills and knowledge. The national curricula in Sweden and Finland also define learning objectives as a binding basis for driving competence acquisition, irrespective of whether the novice driver takes instruction with a professional driving instructor or under the supervision of a lay trainer.

In some countries, manuals are published for the parents and accompanists of novice drivers (e.g. Québec, Florida, Queensland) to provide general information on novice driver preparation and the legal framework for accompanied driving, as well as recommendations with regard to practice content, the preparation of driving sessions and evaluation of the driving performance. In the US state of Florida, the content recommendations are collated in the form of a checklist. The manual for accompanists in the Australian state of Queensland ("Supervising Driver Handbook") contains systematic information on the following topics: "Common types of novice driver accident", "Dealing with stress", "Avoiding pressure to perform", "Stages of learning and required scope of practice", "Logbook requirements", "Planning lessons" (e.g. content, exercises, communication, reviewing), "Using checklists for learning assessment", "Commentary drives" and "Road and weather conditions".

To summarise, it can be said that, in many systems of novice driver preparation, the availability of the teaching/learning form "Accompanied driving"

enables novice drivers to achieve a higher degree of driving experience already before commencing solo driving. The manner in which accompanied driving is realised, however, varies considerably. The differences relate above all to the availability of such opportunities (Can all novice drivers or only a certain subset of novice drivers make use of accompanied driving?), the potentially binding nature (Is participation an optional offer or a mandatory requirement?) and not least the quantity and quality of use (How many hours and kilometres of driving are completed? Which driving tasks and learning situations are covered?).

Depending on the individual form of implementation of accompanied driving, especially in respect of the aforementioned differences, it holds greater or lesser potential to reduce the level of initial risk faced by novice drivers. In certain systems of novice driver preparation, maximum harvesting of the potential is supported in particular fashion by way of regulations and provisions serving to optimise the proportion of participating drivers and to safeguard a high quality of use. Various efforts to combine the informal teaching and learning form “Accompanied driving” with professional forms of driver training are also to be given specific mention in this context

3.2.8 Advanced training courses

While practical driving instruction is aimed at the acquisition of necessary basic driving competence, learning in the form of “advanced training courses” serves to expand the previously acquired basic competence. This refers above all to the acquisition of knowledge and skills in the fields of hazard recognition and hazard avoidance, as well as to the promotion of responsible attitudes to traffic safety (see Chapter 2.3.2).

The courses usually combine theoretical components (in seminar form) with practical driving exercises (on a practice ground and/or in real traffic). Within the framework of these overarching content-related objectives, and in accordance with the form of methodical implementation, advanced training courses are offered with varying focus and for different target groups, for example:

- (1) Course offers which are made available to novice drivers on a voluntary basis,
- (2) Mandatory courses for novice drivers, and
- (3) Mandatory courses for novice drivers who have committed traffic offences (“improvement courses”).

Voluntary advanced training courses are offered by various organisations mandated to promote road safety and usually take the form of special driving safety training on a dedicated practice ground. With regard to the extent of use made of voluntary course offers, the survey replies from experts revealed that there are numerous countries in which such courses are either not available (e.g. Croatia, Latvia, Lithuania, Ontario, Québec, Slovakia, Czech Republic) or else attended by only a small proportion of novice drivers (e.g. France, Hungary, Victoria). In various cases, the participation in advanced training is encouraged by way of incentives (e.g. more favourable insurance terms, shorter probationary period).

Mandatory advanced training courses for all novice drivers (so-called “second phase of driver training”) are only to be found in six of the 44 countries considered by the present report, namely in Luxembourg, Austria and Switzerland (in the group of neighbouring countries around Germany), in Finland (in the group of reform-oriented countries), and in Estonia and Slovenia; none of the countries in the groups of major West European countries or GDL countries require their novice drivers to attend mandatory “second-phase” courses.

Mandatory courses for novice drivers who have committed traffic offences, on the other hand, are stipulated in many countries. Participation in such “improvement courses” may be prescribed in connection with the punishment for a traffic offence, or else merely recommended as a opportunity to reduce the number of demerit points on the driver's record in a national register of traffic offenders.

Table 14 provides first of all an overview of the forms of advanced training courses to be found in the individual countries, and indicates whether participation is mandatory or optional. Subsequently, examples of the advanced course offers available in a number of selected countries serve to illustrate the spectrum of voluntary and mandatory advanced training opportunities which are not aimed specifically at novice drivers who have committed traffic offences – more detailed descriptions of the mandatory improvement courses for traffic offenders and their integration into the protective regulations applicable to novice drivers can be found in Chapter 3.2.9 in connection with the regulations on probationary periods for novice drivers in the autonomous learning phase.

Country	Group	(1) Voluntary course offers / (2) Mandatory advanced courses for all novice drivers / (3) Courses for traffic offenders	Scope of course / Period for attendance after start of solo driving
D	WEU	(1) e.g. driving safety training / (3) mand. improvement course	(1) ≈8 hrs, one day; (3) ≈9.5 hrs
E	WEU	(1) driving safety training / (3) opt. improvement course to reduce demerit	
GB	WEU	(1) driver training in real traffic ("Pass Plus") / (3) opt. improvement course	(1) min. 6 hrs, several days
I	WEU	(3) opt. improvement course to reduce demerit	(3) 12 hrs
F	WEU/NBR	(1) feedback drive, group discussion ("RVE") / (3) mand. improvement course	(1) one/two days / 6 to 12 mos.
B	NBR	(1) driving safety training ("On-the-Road") / (3) opt. improvement course	(1) 3.5 hrs, one day
CH	NBR	(2) e.g. group discussion, feedback drive ("WAB") / (3) opt. impr. course	(2) 16 hrs, two days / 6 to 36 mos.
CZ	NBR		
DK	NBR	(3) mand. improvement course after alcohol-related offences	
L	NBR	(2) driving safety training / (3) mand./opt. impr. course to reduce demerit	(2) 7 hrs, one day / 3 to 24 mos.
PL	NBR	(3) opt. improvement course to reduce demerit	
A	NBR/REF	(2) group discussion, driving safety training / (3) mand. improvement course	(2) 12 hrs, three days / 2 to 12 mos.
NL	NBR/REF	(3) mand. improvement course ("LEMA")	(3) 7 hrs, two days
FIN	REF	(2) mand. advanced course ("two-phase training")	(2) 9 hrs, several days / 6 to 24 mos.
N	REF		
S	REF		
BG	-	(3) opt. improvement course to reduce demerit	
CY	-	-	-
EST	-	(2) theory classes, driving safety training, feedback drive	(2) ≈6.5 hrs, several days/up to 23 mos.
GR	-	-	-
H	-	(1) driving safety training / (3) mand. improvement course	(1) one day
HR	-	-	-
IL	-		
IRL	-	-	-
IS	-	(1) group discussion / (3) mand. improvement course	(1) one day; (3) 14 hrs
LT	-	(3) mand. improvement course	
LV	-	(3) opt. improvement course	
M	-	-	-
P	-	(3) opt. improvement course	
RO	-		
RUS	-		
SK	-	(3) mand. improvement course	
SLO	-	(2) driving safety training, feedback drive / (3) repeat driving school training	(2) 12 hrs, several days/up to 24 mos.
TR	-		
AUS/NSW	GDL	-	-
AUS/QLD	GDL		
AUS/VIC	GDL	(1) opt. course offers / (3) mand. improvement course	
CDN/NS	GDL	(3) improvement course ("Driver Improvement")	
CDN/ON	GDL	-	-
CDN/QC	GDL	(3) improvement course ("Driver Improvement")	
NZ	GDL	(1) e.g. commentary driving ("Defensive Driving" or "Street Talk")	(1) 9 or 4 hrs / 6 to 18 mos.
USA/CA	GDL	(3) improvement course ("Traffic Violator School")	
USA/FL	GDL	(3) mand. improvement course ("Driver Improvement", "DUI")	
USA/NC	GDL	(3) opt. impr. course ("Defensive Driving Course"), also as online course	

Tab. 14: Advanced training courses – Mandatory attendance and course offers ("-" = not applicable; grey cells = no information available; "mos." = months; "hrs" = hours; "mand." = mandatory; "opt." = optional; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Germany (WEU):

In Germany, various organisations with working interests in the promotion of road safety (ADAC, Verkehrswacht, DVR) themselves offer advanced training courses for novice drivers or else contribute to such offers. Such courses are one-day training sessions during which the novice drivers participate in practical driving exercises and group discussions as a forum for mutual exchanges of experience under the supervision of a qualified course instructor. The driving safety training “Junge Fahrer” (“Young Drivers”) offered by the motorists’ club ADAC deals with braking techniques on different road surfaces and gives a first-hand impression of the centrifugal forces which act when negotiating bends. The “Safety Training for Car Drivers” organised by the volunteers’ association Deutsche Verkehrswacht addresses novice drivers with one or two years of driving experience, but at the same time also other target groups (e.g. senior citizens, advanced drivers). Practical exercises and guided group discussions are used to spotlight content such as the effects of physical forces encountered during driving, swerving to avoid obstacles, appropriate braking techniques and driving around bends. The German Road Safety Council (DVR) has elaborated design guidelines and quality parameters for the realisation of driving safety training, which are intended as orientation for the organisers of safety training and enable them to obtain DVR certification for their offers.

Within the framework of a long-term model project which ended in 2010, novice drivers in 13 of the 16 German federal states were able to attend a series of voluntary further training seminars (“Fortbildungsseminar für Fahranfänger – FSF”). This measure was aimed at novice drivers during the regular two-year probationary period after obtaining a driving licence, as well as those whose probationary period had been extended to four years as a result of their having committed traffic offences (see Chapter 3.2.9). The incentive for participation was lifting of the otherwise applicable probationary regulations for the last year of probation. The course comprised three group meetings of 90 minutes each, a 60-minute practice drive under observation in real traffic, and a total of four hours of practical safety exercises on a closed practice ground. Despite the incentive, overall participation figures remained low. The evaluation of the model revealed that course participants later displayed a significantly higher accident risk and were more likely to commit traffic offences than non-participants of the same age who had held a driving licence for a similar period (for an overview:

WILLMES-LENZ et al., 2009). A comparable programme – “Jugend fährt sicher” (“Young People Driving Safely”) – had already been tested in Germany in the early 1990s. It was intended to encourage adapted attitudes among the participants, as a means to counteract possible overestimation of driving skills and an increased risk-taking propensity. The later evaluation found no evidence of an improvement in participants’ safety-oriented attitudes for the analysed period of 12 months after participation in the programme (LEUTNER et al., 2009).

Great Britain (WEU):

In Great Britain, the voluntary “Pass Plus” model offers novice drivers an opportunity to improve their driving skills in special demand situations. The focus is placed on consolidation of those aspects which could not be practised adequately during the regular driver training before taking the driving test. The key topic is hazard recognition. The training comprises six modules: “Driving in town”, “Driving in all weathers”, “Driving on rural roads”, “Driving at night”, “Driving on dual carriageways” and “Driving on motorways”. All modules are completed exclusively in real traffic. Some insurance companies reward participants in the “Pass Plus” programme with reduced premiums for vehicle insurance; around 10 to 15 per cent of novice drivers make use of the programme.

France (WEU/NBR):

Novice drivers in France are able to attend a voluntary evaluation meeting (“RVE - Rendez-vous d’évaluation”) six to twelve months after commencing solo driving. This training offer is organised by institutions accredited by the responsible traffic authority. The total duration corresponds to one day, but the meeting can also be spread over two dates. The group for each meeting comprises at least six, but no more than twelve novice drivers. The first part of the meeting consists of an evaluation of the participants’ driving behaviour. The second part then addresses their motivation and attitudes in respect of safe participation in road traffic, and awareness for traffic hazards and risk situations. Insurance incentives serve to encourage course participation.

Belgium (NBR):

In Belgium, novice drivers are invited to participate voluntarily in a 3.5-hour course (“On-the-Road”), in which various driving manoeuvres and emergency braking are trained on a practice ground. Here, too, insurance discounts are offered as an incentive for course participation. The training course is attended by around 10 to 15 per cent of novice drivers.

Switzerland (NBR):

The Swiss system requires novice drivers to attend two eight-hour advanced training sessions (“WAB”) within the framework of their “two-phase” driver training. The first course day must be completed during the first six months after commencing solo driving, and the second by the end of the three-year probationary period:

- The first training begins with a group discussion on possible causes and consequences of accidents. Subsequently, practical exercises on a practice ground are used to address various topics relevant for road safety (e.g. correct braking, speed regulation, safe distance to other road users, driving through bends).
- On the second day, driver profiles are elaborated for the participants, and any deviations between the novice driver’s self-assessment and an external assessment of driving behaviour during a feedback drive in real traffic are discussed. In addition, knowledge relating to a cooperative, ecological and foresighted manner of driving is conveyed. A concluding interview serves to develop strategies for sustained safe behaviour in road traffic.

Luxembourg (NBR):

In Luxembourg, novice drivers must attend a mandatory one-day advanced training course (“second phase of driver training”) between three and 24 months after commencing solo driving. The course lasts seven hours and is completed exclusively on a practice ground. The topics covered within the framework of theory classes, practical exercises and demonstrations include: “Self-assessment of driving competence”, “Observation and steering techniques”, “Selection of an appropriate speed”, “Keeping a safe distance”, “Emergency braking”, “Braking and avoiding obstacles on slippery roads” and “Behaviour and consequences of a skidding vehicle”. Course participation is intended to alert novice drivers to common hazards of daily road traffic, and to establish an awareness for the limits of vehicle controllability associated with their own behaviour and the physics of vehicle motion.

Austria (NBR/REF):

For novice drivers in Austria, it is a mandatory requirement to attend a total of 12 hours of advanced training spread over three separate days or modules. The course comprises theoretical components, practical driving in real traffic (so-called “perfection drives”) and driving exercises on a practice ground:

- The first module must be completed between two and four months after the driving test, and involves a first perfection drive⁴³. The 50-minute drive in real traffic together with the driving instructor includes around 10 minutes of “commentary driving”; the drive is followed by a 50-minute conversation on topics such as observation techniques, defensive driving, responsible driving behaviour, driving on motorways and in tunnels, environmentally aware driving and overtaking. The perfection drive serves not least to supplement the novice driver’s self-assessment with the assessment of a professional driving instructor.
- The second module is expected to take place between three and nine months after the driving test. It comprises a theory class, practical safety training on a practice ground and a psychological group discussion. Topics dealt with by the theory class are physical principles applicable to driving, braking techniques, vehicle reaction when driving through bends, causes of under- and oversteering, and the active and passive safety systems to be found in vehicles. During the safety training, exercises demonstrate the accident risks arising in physical limit situations and illustrate the correlations between speed and braking distance as they are influenced by the road conditions (e.g. braking on a road with ice on one side). The approx. 100-minute psychological group discussion addresses topics such as novice-typical accident causes, individual risk assessment and the elaboration of individual accident prevention strategies.
- The third module comprises a further perfection drive (see above). It takes place at the earliest six months after the driving test.

The intention of the perfection drives (or “feedback drives”) is to counteract any inappropriate driving habits which may have arisen during previous solo driving practice. The practical driving safety exercises and the demonstration of hazardous traffic situations serve to illustrate the consequences of inapt and risk-oriented driving behaviour. The psychological group discussion takes place immediately after the driving safety training, not least in order to avoid possible unfavourable influences (e.g. overestimation of own driving ability); the

⁴³ The first perfection drive is not applicable for participants in the “L17” model (see Chapter 3.2), as perfection training is already prescribed before the driving test, namely after 3000 km of driving practice.

participants are to be made aware of their personal weaknesses and solution strategies for accident avoidance. The available evaluation study results on the safety-relevant effectiveness of the two-phase training concept indicate a significant decline in the number of accidents resulting in injury to persons (accidents overall and single-vehicle accidents) involving young novice drivers in Austria (GATSCHA & BRANDSTÄTTER, 2008).

Finland (REF):

In Finland, the handling of special demand situations (driving on slippery roads and driving in the dark) is already a topic of driver training before the commencement of solo driving (see Chapter 3.2.5). Two theoretical and two practical course units are devoted to these aspects; the practical units comprise driving exercises and driving instructor demonstrations on a practice ground. In addition, novice drivers must attend a two-day advanced training course at the earliest six months and at the latest 24 months after commencing solo driving. This advanced course comprises three modules:

- Analysis of the novice driver's driving skills and driving style: On the first course day, the novice driver completes two practice drives (of 25 minutes each) together with a driving instructor. Subsequently, he must answer a computer-based test on his traffic behaviour. The driving and test performances are assessed by both the novice driver and the driving instructor, and these external and self-assessments are then compared and discussed. Approximately 40 minutes are allocated to this discussion.
- Training on a practice ground: On the second day, the novice driver practises steering and braking manoeuvres under slippery road conditions within the framework of a three-hour training session on a practice ground (in a group with a maximum of six participants). Additional demonstrations address the effects of different driving speeds, as well as safe distances to other road users and reaction times. The intention is that novice drivers should gain a realistic impression of the limited controllability of a vehicle on slippery roads. The focus of the “track training” is placed on hazard anticipation and hazard avoidance.
- Classes: The classes are held in groups of up to 12 novice drivers (on the same day as the training on the practice ground) and deal with the topics “Risks in road traffic” and “Economical and safe driving”. In addition, the participants discuss their personal ex-

periences during the “track training” and their overall experiences to date since the commencement of driving.

With regard to the objectives of the advanced training courses offered in different countries, it can be summarised that they target novice-typical sources of accident risk, and that this is accomplished in a more intensive manner compared to the phase of initial training. The decisive risk-related aspects addressed are deficiencies in hazard perception and overestimation of the possibilities to maintain control of the vehicle in critical driving situations; building upon recognition of the risks, competences relating to hazard avoidance and defensive driving are strengthened. This is achieved not least through encouragement of self-reflection on the part of the novice driver in respect of his driving behaviour and his driving and traffic competence (e.g. driving ability, attitudes to road safety). Mandatory advanced training measures are widespread above all in the form of improvement courses for novice drivers who have committed traffic offences. Advanced training aimed at all novice drivers, on the other hand, is generally offered as optional courses; the completion of advanced training courses is prescribed in only a few countries.

3.2.9 Solo driving (under protective regulations)

In many systems of novice driver preparation, novice drivers remain subject to certain special protective regulations during the initial phase of solo driving. Such regulations are characterised in that they define a narrower framework for the participation in motorised road traffic, as a means to reduce the exposure to risk (probationary driving licence, driving restrictions). This is of particular importance at the beginning of a driving career, as driving and traffic competence are not yet fully developed at this time and the novice driver is thus less well equipped than a more experienced driver to master the arising traffic demands. As, on the basis of increased driving practice, this phase is at the same time marked by a dynamic expansion of driving competence, which in turn translates directly into a substantial reduction of the accident risk, the protective regulations also serve to establish a low-risk environment for further practical learning. Depending on the form in which regulations are implemented, this function is achieved more or less effectively in the individual systems.

The following section indicates whether and to which extent protective regulations exist to support learning during the initial phase of solo driving, and describes the various regulations which are implemented in the individual countries.

Forms and duration of protective regulations

As to be seen in Table 15, the overwhelming majority of the countries considered by the present report have adopted special protective regulations for novice drivers and thus implement precautionary measures to reduce the level of risk to which novice drivers are exposed during the initial phase of solo driving competence acquisition. If these protective regulations are viewed in detail, it becomes evident that very different forms are chosen to realise a corresponding framework for the solo acquisition of practical driving experience: In some countries, a "probationary driving licence" with lowered sanction thresholds for the case of traffic offences is the only protective measure; other countries, by contrast, stipulate a diversity of specific driving restrictions (e.g. no driving at night, speed restrictions) to regulate the novice driver's initial participation in motorised road traffic and thereby to avoid actual risk exposure and excessive demand situations.

The overview of the measures implemented in the different countries shows that probationary periods are stipulated almost everywhere, whereas specific driving restrictions are far less usual. Of the major West European countries, only Germany and Spain apply a zero-alcohol rule or at least a lower limit for the permissible blood alcohol content ("BAC"). Restrictions relating to the maximum permissible driving speed for novice drivers exist in France, Italy and Spain. In addition, the vehicle must be marked as a novice driver's vehicle in France and Spain.

In the neighbouring countries around Germany and in the reform-oriented countries, there are practically no further protective measures to govern solo driving competence acquisition apart from a "probationary driving licence" and the associated threat of sanctions. By contrast, solo driving under protective regulations – alongside the longer-term acquisition of practical experience by way of accompanied driving under the supervision of an experienced lay person – is an essential element of GDL systems. In the group of GDL countries, there are correspondingly many systems of novice driver preparation in which various protective regulations (probationary driving licence, driving restrictions such as the exclusion of night-time driving or restrictions concerning passengers) are combined.

Table 15 also indicates the periods for which the novice driver remains subject to protective regulations after commencing solo driving. For an evaluation of these data, it must be taken into account that, according to the results of accident analyses (MAYCOCK, LOCKWOOD & LESTER 1991; SCHADE, 2001), novice drivers face the highest risk of accident involvement at the beginning of their solo driving career, but that this risk decreases with increased driving experience: Studies conducted in various countries suggest that the initial accident risk is halved after approximately the first 8 to 10 months of solo driving; the process of driving competence acquisition continues over a period of several years (for an overview: GRATENTHALER, KRÜGER & SCHOCH, 2009). Protective regulations for solo driving should thus cover the whole period of increased risk exposure for novice drivers, i.e. from the period of high accident risk at the commencement of solo driving through to arrival at the level of "residual risk" to which all drivers are exposed.

The protective regulations implemented in the individual countries (see Table 15) are commonly applicable for a period of either 24 or 36 months. In the group of major West European countries, the longest periods are found in Spain, Italy and France with 36 months. In Germany, a probationary driving licence is granted for 24 months. During this period, and in general up to the age of 21 years, novice drivers must observe an absolute zero-alcohol rule. Among the neighbouring countries around Germany and reform-oriented countries, the longest period stipulated for solo driving under protective regulations is 60 months in the Netherlands, followed by 36 months in Denmark and Switzerland. The longest period of solo driving under protective regulations (including vehicle marking and peer passenger restrictions) in the group of GDL countries is stipulated in the Australian state of Victoria, namely 48 months. The shortest periods found in any of the countries considered by the present report are 12 months (e.g. Poland, Romania) or even less (e.g. Ontario).

Country	Group	Protective regulations applicable to novice drivers						Duration (months)
		Probationary driving licence ¹	Vehicle marking	No night-time driving	Peer passenger restrictions	Speed restrictions	Alcohol limit (max. BAC in ‰)	
D	WEU	X	-	-	-	-	X (ND 0.0; gen. 0.5)	24
E	WEU	X	X ²	-	-	X ²	X ³ (ND 0.3; gen. 0.5)	36
GB	WEU	X	-	-	-	-	- (gen. 0.8)	24
I	WEU	X		-		X	- (gen. 0.5)	36
F	WEU/NBR	X	X	-	-	X	- (gen. 0.5)	24 ⁴ or 36
B	NBR	X	X ⁵	X ⁵	X ⁵	-	- (gen. 0.5)	24
CH	NBR	X	X	-	-	-	- (gen. 0.5)	36
CZ	NBR	No protective regulations during initial phase of solo driving						
DK	NBR	X	-	-	-	-	- (gen. 0.5)	36
L	NBR	X	-	-	-	-	X (ND 0.2; gen. 0.5)	24
PL	NBR	X	-	-	-	-	- (gen. 0.2)	12
A	NBR/REF	X	-	-	-	-	X (ND 0.1; gen. 0.5)	24
NL	NBR/REF	X	-	-	-	-	X (ND 0.2; gen. 0.5)	60
FIN	REF	X	-	-	-	-	- (gen. 0.5)	18-24 ⁶
N	REF	X	-	-	-	-	- (gen. 0.2)	24
S	REF	X	-	-	-	-	- (gen. 0.2)	24
BG	-	No protective regulations during initial phase of solo driving						
CY	-	No protective regulations during initial phase of solo driving						
EST	-	X	X	-	-	X	- (gen. 0.0)	24
GR	-	-	X	-	-	-	X (ND 0.2; gen. 0.5)	24
H	-	X	-	-	-	-	- (gen. 0.0)	24
HR	-	X	-	X	-	-	X (ND 0.0; gen. 0.5)	24
IL	-	X	X	-	X	-		24
IRL	-	No protective regulations during initial phase of solo driving						
IS	-	X	-	-	-	-	- (gen. 0.5)	12-36 ⁷
LT	-	X	X	-	-	X	- (gen. 0.4)	24
LV	-	X	-	-	-	-	X (ND 0.2; gen. 0.5)	24
M	-	X	-	-	-	-	- (gen. 0.8)	36
P	-	X	-	-	-	-	- (gen. 0.5)	36
RO	-		X				- (gen. 0.0)	12
RUS	-							
SK	-	X	-	-	-	-	- (gen. 0.0)	24
SLO	-	X	-	-	-	-	- (gen. 0.5)	24
TR	-						- (gen. 0.5)	
AUS/NSW	GDL	X	X	-	X	X	X (ND 0.0; gen. 0.5)	36-48
AUS/QLD	GDL	X	X	-	-	-	X (ND 0.0; gen. 0.5)	36
AUS/VIC	GDL	X	X	-	X	-	X (ND 0.0; gen. 0.5)	48
CDN/NS	GDL	X	-	X	X	-	X (ND 0.0; gen. 0.8)	24
CDN/ON	GDL	X	-	-	-	-	X (ND 0.0; gen. 0.5)	8-12 ⁸
CDN/QC	GDL	X	-	-	-	-		24
NZ	GDL	X		X	X	-	X (ND 0.3; gen. 0.8)	12-18 ⁹
USA/CA	GDL	X	-	X	X	-	X (ND 0.1; gen. 0.8)	12 ⁹
USA/FL	GDL	X	-	X	-	-	X (ND 0.2; gen. 0.8)	24 ⁹
USA/NC	GDL	X	-	X	X	-	X (ND 0.0; gen. 0.8)	6-24

Tab. 15: Protective regulations during initial phase of solo driving – Forms and duration (“X” = applicable; “-” = not applicable; grey cells = no information available; “BAC” = blood alcohol content in general (gen.) and for novice drivers (ND); WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Driving licence with lowered sanction threshold for novice drivers during the initial period of solo driving (for details of possible sanctions, see Table 16); ² During the first 12 months; ³ During the first 24 months; ⁴ 24 months under “ACC” model; ⁵ Only under “18M” model; ⁶ Driving licence without protective regulations after mandatory advanced training; ⁷ Driving licence without protective regulations after mandatory evaluation lesson; ⁸ “Time discounts” for formal driver training; ⁹ Or until age of 18 years

In most cases, the special protective regulations are applicable to an equal extent and for an equal period for all novice drivers in a particular country, but there are nevertheless a few systems of novice driver preparation in which individually differentiated protective regulations are applied. In a number of GDL systems, for example, progressively less restrictive special regulations are imposed on solo driving, i.e. the protective measures are lifted step by step with increasing driving experience and subject to an appropriate driving record. Novice drivers in Victoria, for example, are initially only permitted to drive under strict protective regulations; at the earliest after 12 months, and only if no traffic offences have been recorded, is it possible to lift certain restrictions such as the ban on using a mobile phone even with a hands-free device. The lifting of protective regulations may also be linked to the passing of further tests (e.g. in New South Wales, where novice drivers must take a traffic perception test after commencing solo driving). In New Zealand and the Canadian province of Ontario, the duration of the autonomous learning phase can be shortened by attending formal driver training (the so-called “time discounts” here serve as incentives to encourage the use of professional driver training offers).

In the following, the various protective regulations are to be considered in more detail and illustrated by way of examples from the individual countries.

Probationary driving licence:

As can be derived from Table 15, practically all countries in which the novice driver enters a protectively oriented autonomous learning phase with the commencement of solo driving issue a probationary driving licence for the period of this initial phase. As a holder of such a probationary driving licence, the novice driver is subject to a lower sanction threshold compared to holders of a full driving licence free of special conditions. Examples from the individual countries to illustrate the possibilities for the sanctioning of traffic offences in general, and the implications for novice drivers in particular, are to be found later in this chapter (see “Lowered sanction threshold for traffic offences during the probationary period” below)

Vehicle marking:

In some countries, the driver's status as “novice driver” must be indicated by way of special marking of the vehicle (e.g. in France, Lithuania or Spain). This marking informs other road users that the driver is still inexperienced, and that they should show corresponding consideration. At the same time, the vehicle marking also serves to facilitate monitoring of the compliance with any spe-

cial regulations which may apply to novice drivers (e.g. speed restrictions, exclusion of night-time driving) by the police. In some GDL systems, different vehicle markings are used to indicate the level at which the novice driver currently stands on his way to obtaining a full driving licence. In the Australian state of Queensland, for example, a distinction is made between a “Provisional Driving Licence 1” (P1 licence) and a “Provisional Driving Licence 2” (P2 licence), with fewer protective regulations being attached to the latter to reflect an already further developed driving competence. Depending on the level attained to date, novice drivers must display first a red “P” sticker, and later a green “P” sticker on the windscreen and rear window of the vehicle.

Exclusion of night-time driving:

Novice drivers in the Canadian provinces of Ontario and Nova Scotia are not permitted to drive at night, i.e. between midnight and 5 a.m., unless accompanied by an experienced driver as passenger. In New Zealand, novice drivers must be accompanied by an experienced adult between 10 p.m. and 5 a.m., and in California by a parent, a certified driving instructor or another person over 25 years of age and in possession of a driving licence for all driving between 11 p.m. and 5 a.m. In Belgium, novice drivers who are learning under the “18M” model are not permitted to drive between 10 p.m. and 6 a.m. at weekends or on public holidays and the corresponding days before such holidays.

Peer passenger restrictions:

A restriction on the number of passengers carried exists in Israel, for example, where only two further persons may be in the vehicle during the autonomous learning phase (unless an experienced adult driver is present). In Belgium, novice drivers under 24 years of age who are training under the “18M” model, and are thus permitted to drive solo before taking the driving test, are limited to only one passenger, who must furthermore be at least 24 years old and himself in possession of a class B driving licence. In California, persons under 20 years of age may only be carried as passengers if an experienced adult driver aged 25 years or above is also in the vehicle. In Victoria, no more than one passenger between 16 and 25 years of age is permitted during the first 12 months of solo driving (“P1 licence”). In the US state of North Carolina, novice drivers must not be accompanied by more than one passenger younger than 21 years; only in the case of close family relatives is there no restriction on the number of youth passengers.

Speed restrictions:

In France, a reduced maximum speed limit of 80 km/h applies for novice drivers on all roads outside built-up areas where otherwise a general speed limit of 90 km/h is stipulated. On motorways with a general speed limit of 110 or 130 km/h, novice drivers must not exceed 100 or 110 km/h, respectively. In Lithuania, a lower speed limit of 70 km/h on rural roads and 90 km/h on motorways must be observed by novice drivers. In New South Wales, novice drivers with a "P1 licence" are subject to a maximum permissible speed of 90 km/h, and holders of a "P2 licence" to a limit of 100 km/h.

Zero-alcohol rule/lower alcohol limit:

Some countries specify a lower threshold for the maximum permissible blood alcohol content for novice drivers than for experienced drivers. As can be seen in Table 15, two of the major West European countries have adopted stricter alcohol limits for novice drivers, namely Germany and Spain. In Germany, an absolute zero-alcohol rule applies for holders of a probationary driving licence and for all novice drivers under 21 years of age (compared to the general limit of 0.05 per cent), while Spain reduces the maximum permissible blood alcohol content for novice drivers during the first 24 months of solo driving to 0.03 per cent (compared to the generally applicable limit of 0.05 per cent). Among the neighbouring countries around Germany and the reform-oriented countries, stricter alcohol limits exist only in Luxembourg, the Netherlands and Austria. In the group of GDL countries, on the other hand, stricter alcohol limits are found in all countries; in the majority of cases, an absolute zero-alcohol rule applies.

In a number of further countries (Estonia, Romania, Hungary, Slovakia), a zero-alcohol rule applies not only for novice drivers, but also for experienced drivers; the rule is thus – strictly speaking – not a special protective regulation for novice drivers and is consequently also not listed as a novice-specific provision in Table 15.

Further protective regulations:

Some systems of novice driver preparation do not permit novice drivers to drive certain types of vehicles – usually particularly powerful vehicles – during the autonomous learning phase. In Croatia, novice drivers are not allowed to drive a vehicle

with an engine power of more than 75 kW, while Hungary forbids the towing of trailers by novice drivers. In the Australian state of New South Wales, no vehicle with an eight-cylinder or turbo engine may be used throughout the autonomous learning phase. It is furthermore prohibited for a holder of a "P1 licence" to tow a trailer with an unladen weight of more than 250 kg. The Australian state of Victoria imposes similar restrictions on the use of powerful vehicles and trailers.

The use of mobile telephones while driving is forbidden under all circumstances for holders of a "P1 licence" in the Australian states of Victoria and New South Wales, including use with a hands-free device. Novice drivers holding a "P2 licence", on the other hand, are permitted to use a mobile phone with hands-free device.

In a few countries in which it is mandatory to attend an advanced training course after the commencement of solo driving ("two-phase training", see Chapter 3.2.8), the completion of such a course is a prerequisite for the granting of a driving licence which is no longer subject to protective regulations. Further mandatory tests may also be prescribed after the commencement of solo driving (see Chapter 3.3.1).

Lowered sanction threshold for traffic offences during the probationary period

In many countries, traffic offences are kept on record for a certain period by way of a demerit points system – in addition to the sanctioning of the individual offence; if a defined points threshold is exceeded, the driver faces further sanctions as specified in the relevant driver licensing legislation. Among such demerit points systems, there are furthermore some countries which apply stricter sanctioning criteria in the case of novice drivers. In Germany, for example, the so-called "probationary regulations" form the decisive basis for intervention to improve road safety for novice drivers at the beginning of their solo driving career.

Table 16 shows the countries in which a demerit points system is implemented, and whether this system stipulates stricter thresholds for novice drivers. The table also indicates the sanctions which may be applied in response to traffic offences.

Country	Group	Demerit points system ...		Sanctions defined in driver licensing legislation			
		... for all drivers	... with novice-specific regulations	Improvement course	Renewed test	Driving ban	Extended probationary period
D	WEU	X	X	X	X ¹	X	X
E	WEU	X	X	X	X	X	-
GB	WEU	X	X	X	X	X	-
I	WEU	X	X	X	X	X	-
F	WEU/NBR	X	X	X	X	X	-
B	NBR	-	-	X	X	-	-
CH	NBR	-	-	X	X	X	X
CZ	NBR	X	-		-	-	-
DK	NBR	X	X	X	X	X	-
L	NBR	X	-	X	-	X	X
PL	NBR	X	X	X	X	X	X
A	NBR/REF	X	-	X	-	X	X
NL	NBR/REF	-	X ²	X	X	X	-
FIN	REF	-	-	-	X	X	-
N	REF	X	-		X	X	X
S	REF	-	-	-	X	X	-
BG	-	X	-	X	-	-	-
CY	-			-			
EST	-	-	-			X	X
GR	-	X		-	-	-	-
H	-	X	-	X	X	X	X
HR	-	X		-	X	X ³	-
IL	-	X			X	X	X
IRL	-	X		-			-
IS	-	X	X	X	X	X	-
LT	-			X	-	-	-
LV	-	X	X	X	X	X	X
M	-	-	X ²	-	-	X	-
P	-	X	X	X	X	X	-
RO	-						
RUS	-						
SK	-	-	-	X	X	X	-
SLO	-	X	X	X	X	X	-
TR	-						
AUS/NSW	GDL	X	X	-	X	X	-
AUS/QLD	GDL	X	X			X	X
AUS/VIC	GDL	X	X	X	X	X	X
CDN/NS	GDL	X	X	X	X	X	X
CDN/ON	GDL	X	X	-	-	X	-
CDN/QC	GDL	X	X	X	-	X	X
NZ	GDL	X				X	
USA/CA	GDL	X		X	-	X	X
USA/FL	GDL	X	X	X	-	X	-
USA/NC	GDL	X	X	X		X	

Tab. 16: Demerit points systems and legal sanctions imposed on novice drivers ("X" = applicable; "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ At the discretion of the licensing authority; ² Points system only for novice drivers; ³ Driving bans between 3 and 6 months

The legal sanctions shown in Table 16 may be combined and integrated with each other in various different ways. It is always the case, however, that they are imposed in addition to the sanctions serving as immediate punishment of a traffic offence. For illustration, the circumstances in individual countries are outlined in the following.

Germany (WEU)

The initial issuing of a driving licence at the same time marks the start of a two-year probationary period for the novice driver. If a novice driver commits a “serious” traffic offence, or two “less serious” traffic offences during this period, he is required to attend driver improvement training – a so-called “Aufbauseminar für Fahranfänger” (“Advanced Training Seminar for Novice Drivers”, ASF), see below – and the probationary period is extended to four years (“first intervention level”). If, following attendance at an improvement seminar, the novice driver commits a further “serious” traffic offence or two further “less serious” traffic offences during the probationary period, a written reprimand is issued with the recommendation to attend a consultation with a traffic psychologist within two months (“second intervention level”). Another “serious” traffic offence or two “less serious” traffic offences during these two months results in withdrawal of the driving licence for at least three months (“third intervention level”). Following withdrawal of the driving licence, it is left to the discretion of the licensing authority, whether a renewed driving test must be taken to regain the licence.

The aforementioned “Advanced Training Seminar for Novice Drivers” is conducted by correspondingly approved driving instructors in groups of six to twelve participants. It comprises a total of four theoretical sessions lasting 135 minutes each. A 30-minute drive under observation is held between the first and second sessions. The seminar discusses, among other topics, the traffic offences committed by the participants and strategies for future avoidance. Novice drivers who have committed alcohol-related offences must attend a so-called “special advanced seminar” comprising a preliminary interview and three group discussions (three hours each) conducted by a traffic psychologist.

Spain (WEU)

In Spain, novice drivers receive eight credit points at the beginning of the three-year autonomous learning phase (twelve credit points are awarded at the end of the autonomous learning phase). Points are deducted from the driver's record if traffic offences are committed, e.g. driving under the influence of alcohol. If all the assigned credit points have been forfeited, the driving licence is with-

drawn and a renewed test must be taken before it can be re-issued. Forfeited credit points can be regained through timely participation in designated training measures.

Italy (WEU)

In Italy, a newly granted driving licence carries 20 credit points, from which between two and ten points are deducted for any traffic offences committed, depending on the severity of the offence. After two years without traffic offences, the original credit of 20 points is restored. Double points are deducted for offences committed by novice drivers during the autonomous learning phase. If a driver's points account falls to zero, his driving licence is withdrawn for a period of two to eight months and both the knowledge test and the driving test must be repeated to regain the licence. Six forfeited points can be recovered by attending a 12-hour improvement course in a driving school.

France (WEU/NBR)

Novice drivers in France receive a credit of six points for the autonomous learning phase (compared to the usual twelve points granted to experienced drivers). Between one and six points are deducted for any traffic offences, depending on the severity. Deducted points are restored after three years, provided no further traffic offences have been committed. If a novice driver's credit total falls to three points, he must attend a two-day improvement seminar (“Stage de sensibilisation”). The loss of all credit points leads to withdrawal of the driving licence for at least six months, and a new driving test must be taken.

Switzerland (NBR)

In Switzerland, the driving licence is issued on a probationary basis for the first three years after the driving test. If the licence is withdrawn on account of traffic offences, the probationary period is extended by a further year. If the driving licence is subsequently withdrawn a second time, the novice driver must apply for a new learner driving licence; furthermore, the prescribed theory classes, knowledge test and driving test must be repeated. The application for a new learner driving licence can only be submitted after a waiting period of at least one year from the date of the traffic offence concerned and must be supported, furthermore, by a traffic psychologist's report.

Denmark (NBR)

In Denmark, novice drivers are allowed to collect a maximum of two points during the three-year autonomous learning phase. The limit for other drivers is three points. The driving licence is withdrawn if a serious traffic offence is committed, for example exceeding the prescribed speed limit by

more than 70 per cent or driving under the influence of alcohol. Following licence withdrawal, novice drivers must attend a driver training course (7 hours of theory classes and 8 hours of practical driving instruction) or a special course on the subject of "Alcohol and road traffic". They are furthermore required to take a second driving test, in which the demands placed on the candidate are higher than in the regular driving test.

Luxembourg (NBR)

All drivers in Luxembourg are granted a credit of 12 points, from which certain numbers of points are deducted for each traffic offence committed. If all these credit points are lost, the driving licence is withdrawn for 12 months, or subsequently for 24 months if all 12 credit points are forfeited a second time within three years after the regranting of a withdrawn driving licence. Points can be recovered by attending an awareness programme. This so-called "three-points course" is a one-day improvement course lasting approx. 7 hours. It comprises theory classes, driving exercises and demonstrations, which are intended to enable the driver to recognise past inappropriate behaviour and to avoid recurrence in the future. The course addresses the various influences on driving behaviour (e.g. speed, reaction time, alcohol, medication, drugs, fatigue, distraction), the reasons for speed limits, the observance of a safe distance to other road users, and correct behaviour at traffic signals. If the driving licence has been withdrawn, completion of a 5-day course is a prerequisite for lifting of the driving ban and a new total of 12 credit points.

Poland (NBR)

In Poland, novice drivers lose their driving licence if they accumulate 21 demerit points. This limit applies for the first 12 months after granting of the driving licence. The limit for all other drivers is 24 points. Furthermore, novice drivers must repeat both the mandatory driver training and the driving licence test in case of licence withdrawal, whereas it is generally only required to take a renewed driving test. Six demerit points are cancelled after completion of an improvement course.

Austria (NBR/REF)

In Austria, the maximum permissible blood alcohol content for novice drivers during the two-year probationary period is 0.01 per cent (compared to the usual 0.05 per cent). In case of violation of this 0.01 per cent limit during the probationary period, and likewise in case of any other serious traffic offence, improvement training is prescribed and the probationary period is extended by one year. In addition, certain offences are recorded within the framework of a demerit system for all drivers. The

system catalogue covers a total of 13 "recordable offences" (e.g. endangering of pedestrians on a pedestrian crossing, failure to observe a stop sign). A recordable offence remains noted in the endorsement register for two years. Further offences lead to the stipulation of improvement measures and finally to withdrawal of the driving licence.

Finland (REF)

In Finland, a first minor traffic offence results in a written reprimand. If a second offence is committed within a year, or a third offence within two years, the driver receives a police summons. Possible consequences are a driving ban of between one and six months or the requirement to repeat the driving licence test.

USA/Florida (GDL)

The points system implemented in Florida applies stricter rules for novice drivers under 18 years. If six demerit points are received within 12 months, use of the driving licence is limited to journeys to and from work for a period of one year. This restriction is extended for a further 90 days for each additional point received during this period. In addition, attendance at an "Advanced Driver Improvement Course" is prescribed. Novice drivers under 21 years who drive with a blood alcohol content exceeding 0.01 per cent automatically lose their driving licence for six months. From a blood alcohol content of 0.05 per cent, they are furthermore required to attend a special course on the topic of driving under the influence of alcohol or drugs (so-called "DUI school"), in the context of which the necessity for more comprehensive treatment of the underlying problem is clarified. Further sanctions imposed in case of traffic offences include fines, possibly imprisonment, or community service of up to 50 hours. In addition, it may be stipulated that an ignition interlock be fitted to the driver's vehicle for up to six months; driving is then only possible after a breath alcohol measurement ("alcohol interlock device"). Repeated offences in connection with alcohol or drugs result in increasingly severe financial and legal consequences.

To summarise, it can be determined that solo driving under protective regulations is a widely implemented form of driving competence acquisition. Essential differences exist in respect of the types and combinations of protective regulations and the duration of their applicability during this phase of learning. In the GDL systems, the progressive lifting of protective regulations as driving competence increases can be viewed as a special variant of this teaching and learning form.

3.2.10 Road safety education in schools (targeted to new and young drivers)

Whereas the previous chapters presented teaching and learning forms which can be assigned to the core sphere of licensing-related measures within the individual systems of novice driver preparation, the examples contained in the following descriptions refer to broader forms of intervention found in the context of the preparation of novice drivers. One such form of intervention is the road safety education practised in schools (see Chapter 2.3.2), through which future generations of drivers can be addressed over a longer period, alongside the fundamental possibility to integrate road-safety-specific topics into other school education content.

With regard to the following exemplary descriptions of “Road safety education in schools” as a teaching/learning form within the system of novice driver preparation, it is particularly interesting to consider the content orientation of the school-based measures targeting new and young drivers, and the manner in which they are integrated into the overall system of novice driver preparation.

Germany (WEU)

In Germany, a project promoting cooperation between schools and driving schools (“Koooperation Schule-Fahrschule”) targets young people who intend to apply for a class B driving licence in the near future. Within the framework of a school-based working group (“Führerschein-AG”), the novice drivers are given an opportunity to approach topics related to participation in motorised road traffic in a form independent of the regular training in a driving school. The 14 mandatory theory classes (double units) in the driving school are supplemented by a further 14 double course units of road safety education at school. The aim is to convey extended “mobility competence”, placing safety-enhancing, environmentally aware and socially responsible traffic behaviour at the focus. To this end, topics such as “Road traffic as a social system”, “Rules and norms”, “Traffic and the environment”, “Public traffic” and “The motor car as a means of transport” are discussed and integrated with the theory classes and practical driving instruction offered by the driving school. Where possible, this cooperation between schools and driving schools involves other relevant protagonists and institutions (e.g. police, fire service, doctors, road safety experts). The school working groups are a voluntary measure which is realised free of charge for novice drivers alongside their regular school classes and mandatory driving school training.

Great Britain (WEU)

In Great Britain, it is possible to take part in a vocational further training measure which aims to improve the necessary competences for safe participation in road traffic. The offer comprises two theoretical modules lasting a total of 12 hours. Participants receive a corresponding certificate and the programme is recognised as a vocational further training measure.

France (WEU/NBR)

In France, the process to obtain a driving licence is integrated into an overarching curriculum (“Continuum Educatif”). To gain admission to the driver training leading to a driving licence, novice drivers must have first attended a special school road safety course, which is completed with a test and the granting of a certificate (“Attestation scolaire de sécurité routière – ASSR”). A similar rule applies also for applicants for a moped licence.

Belgium (NBR)

In Belgium, novice drivers from the age of 17 years are able to prepare for the knowledge test by way of eight-hour school courses. The courses are offered in the Flemish-speaking regions within the framework of the project “Driving Licence at School” (“Rijbewijs op School”) and are conducted by a professional driving instructor. The Flemish Foundation for Traffic Knowledge (“Vlaamse Stichting Verkeerskunde”) coordinates the contact between schools, driving instructors and test organisations. The aim of the project is to offer school pupils a good opportunity to prepare for the knowledge test, and to achieve a sustained awareness for the age-specific aspects of road safety in the target group.

Luxembourg (NBR)

An online safety awareness project addressing mobility and safety in road traffic (“Mobilité et Sécurité sur la Route”) has been offered in all secondary schools in Luxembourg since 2003. In addition, all classes of the intermediate grades take part in an annual “road safety event” in their school. The background to this measure is the fact that many novice drivers have already been involved in an accident before they attend the mandatory advanced training course (“second phase of driver training”; see Chapter 3.2.8) during the autonomous learning phase. For most pupils, the “road safety event” falls into the same year as the commencement of their driver training. The event revolves around a group discussion, in which – supported by statistics, videos, eye-witness reports and the wreckage of vehicles involved in serious accidents – inappropriate driving behaviour is spotlighted as a potential cause of accidents.

Australia/New South Wales (GDL)

In New South Wales, the general school curriculum specifies classes on road safety for children aged 9-10 years and 11-12 years. In addition, state schools are able to offer voluntary courses in the sense of novice driver preparation, where focus is placed primarily on the acquisition of traffic-related knowledge and the promotion of safety-relevant attitudes. It is similarly possible to offer practical driving instruction in the context of general school education. To this end, the Department of Education and Training, as the responsible authority, publishes framework conditions and implementation guidelines. Accordingly, practical driving instruction must be given either by correspondingly qualified teachers or external driving instructors, and must take place outside regular school hours. The driver training in schools emphasises the importance of safety-aware driving and is not geared to the development of advanced driving skills. To be able to offer driver training, the school must first elaborate a detailed specification of the teaching and learning methods to be applied, and the targeted learning objectives of its driver training programme. Furthermore, it must describe the evaluation measures which are to serve to assess the performance of novice drivers. The practical driving instruction in schools is offered free of charge and participation is voluntary. The prerequisite for participation is possession of a learner driving licence. The practical driving instruction is given exclusively on a one-to-one basis.

USA/California (GDL)

In California, formal driver training is prescribed for novice drivers younger than 17 years and 6 months. This training can be completed either in an approved driving school or within the framework of general school education, and must comprise at least 30 hours of theory classes and 6 hours of practical driving instruction. The driver training at general schools is also conducted by a driving instructor.

3.2.11 Road safety campaigns (targeted to new drivers)

“Road safety campaigns” must also be taken into account as a form of intervention serving novice driver preparation (see Chapter 2.3.2). They aim to influence traffic behaviour by making use of various means of mass communication. In the following, selected examples illustrate the spectrum of thematic content and the chosen forms of address.

Germany (WEU)

In Germany, targeted safety campaigns are organised by the German Road Safety Council (DVR) and the road safety volunteers' association Deutsche Verkehrswacht (DVW), among others. A wide range of media (posters, flyers, educational films, on-the-street contact, personal communication, Internet) are used to convey information on typical causes of accidents and to address safety appeals to the target group. Information on safe driving and on learning to drive can also be accessed via corresponding websites.⁴⁴ The dedicated website of the accompanied driving model “BF17”, for example, is a detailed source of practical tips and background information on the effectiveness of this training approach with regard to improved road safety.⁴⁵

Belgium (NBR)

The “BOB” campaign promotes the concept of “designated drivers”. The idea is that, in the context of group leisure activities or social occasions, one member of the group (“Bob”, from “Bewust Onbeschonken Bestuurder”, a Flemish rendering of “designated driver”) takes on the role of driver for the group and consciously abstains from drinking alcohol. The issue of driving under the influence of alcohol and the concept of designated drivers as a possible solution are presented both in the mass media and directly in bars and discotheques. Parallel to the campaign, police enforcement is intensified. The campaign originated in Belgium, but has since also been implemented in similar form in other countries (e.g. in France, Greece, the Netherlands and Poland).

The campaign “Flits!” is aimed at young drivers aged between 18 and 24 years, and focuses awareness on the increased accident risk of driving in a group context by presenting the example of a night-out which ends tragically.

Denmark (NBR)

The Danish campaign “Skytsengle” (“Guardian Angels”) follows the approach of peer-to-peer communication. Young drivers are made aware of the increased risks of driving in the social leisure context (e.g. driving under the influence of alcohol, driving in the dark, negative influences from passengers) by others of their own age group.

Norway (REF)

In Norway, the approach of peer-to-peer communication is implemented within the framework of the “Speak Out!” campaign (“Si ifra!”). The passengers of young drivers are here encouraged to speak out

⁴⁴ www.jungesfahren.de (2 September 2011)

⁴⁵ www.bf17.de (2 September 2011)

if they are concerned about unsafe behaviour on the part of the driver. It is assumed that the relevant target group recognises and generally rejects risky driving behaviour (e.g. excessive speed, driving under the influence of alcohol), but that group pressures often prevent them from actually verbalising their concerns.

Canada/Ontario (GDL)

In Ontario, the safety programme “iDrive” is intended to draw the attention of young drivers to the risks of aggressive and unsafe driving. The programme package contains a video presentation and a presenter’s guide. The video features expert testimonials, celebrity endorsements, interviews with college and university students, and dramatised scenes relating to road safety. This package is made available free of charge to schools and driving schools, local police authorities, health service staff, etc.

Further relevant topics which are addressed in safety campaigns in individual countries are driver fatigue (e.g. “Pit-Stop” in Belgium), the use of mobile telephones (e.g. “Drive safely! Use HANDS-FREE!” in Bulgaria), environmentally aware driving (e.g. “Cool Fahren, Sprit Sparen” – “Drive cool, save fuel” – in Germany) or the use of seatbelts (e.g. “Click It Or Ticket” in California).

3.3 Forms of testing in novice driver preparation

3.3.1 Overview

Following presentation of the country-specific availability and implementation of different teaching and learning forms in Chapter 3.2, this chapter now considers forms of testing in more detail. In accordance with the terminology defined for the project (see Chapter 2.3.2), the following forms of testing were distinguished and described with regard to their characteristic features and functions:

- Knowledge test,
- Traffic perception test,
- Learner assessment,
- Driving test.

Knowledge tests (“theoretical driving tests”), driving tests (“practical driving tests”) and – in certain systems of novice driver preparation – traffic perception tests (also referred to as “hazard perception tests”) are conducted by independent test organisations and are relevant for the granting of driving licence rights. Learner assessments, on the other hand, are performed at various levels of for-

malisation, e.g. by the driving instructor during driving school training, by the accompanist during accompanied driving, or by the learner himself (self-evaluation). Their function lies primarily in verification of the attained level of competence and in control of the further course of training; they are mostly of no direct significance for the granting of a driving licence.

Within systems of novice driver preparation, driving licence tests realise a selection function, by denying access to a driving licence to those novice drivers who have not yet acquired the necessary knowledge and skills. In addition, tests possess a control function, as the test demands provide orientation for the driver’s learning. Finally, driving licence tests mark essential transition points for the developing role of the novice driver as a participant in motorised road traffic, and can be seen to represent stages along the road to solo driving free of all novice-specific special regulations.

The commencement of solo driving, and the associated entry into the high-risk phase of initial solo driving experience, must be mentioned as one particularly significant transition point. In the terminology of the present project, this phase is described as the “autonomous learning phase”. In all the countries considered by the project, the passing of a driving test is a prerequisite for transition to the autonomous learning phase.⁴⁶ In most cases, the novice driver commences solo driving immediately after passing the driving test. The German “BF17” model is here an exception, as solo driving is not permitted until the novice driver has additionally reached the age of 18 years.

The objective of the following analysis is to identify the differences between the individual countries with regard to realisation of the aforementioned forms of testing and their integration into an overarching system of novice driver preparation. The first columns of Table 17 indicate the forms of testing which belong to the system of novice driver preparation in each country. The right-hand column then describes the systematic positioning of these forms of testing relative to the corresponding formal or informal teaching and learning (e.g. whether they are preceded by formal driver training), whether they found certain driving entitlements, and whether the tests must be taken before commencing solo driving (i.e. during the supervised learning phase) or later (i.e. during the autonomous learning phase).

⁴⁶ One exception is the “18M” model in Belgium, under which solo driving is already permitted before taking the driving test provided at least 20 driving lessons have been completed.

Country	Group	Knowledge test	Traffic perception test	Learner assessment	Driving test	Integration of the forms of testing into novice driver preparation
D	WEU	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Learner assessments in driving school (“ready for test”) • Knowledge test after mand. theory classes • Driving test exclusively after short form of mand. practical driving instruction • Driving test followed by accompanied driving phase (up to age 18) under “BF17” model • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence, zero-alcohol rule)
E	WEU	X (mand.)	-		(mand.)	Supervised learning phase: • Practical driving instruction only after knowledge test • Driving test after short or long form ¹ of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (36 mos. probationary licence, of which 12 mos. with vehicle marking, speed restrictions, lower alcohol limit)
GB	WEU	X (mand.)	X (mand.)	- X	X (mand.)	Supervised learning phase: • Start of practical driving instruction (private and commercial) already before knowledge test • Knowledge and traffic perception tests at same time • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence)
I	WEU	X (mand.)	-		(mand.)	Supervised learning phase: • Start of practical driving instruction (private and commercial) already before knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (36 mos. probationary licence, speed restrictions)
F	WEU/NBR	X (mand.)	-	- X	X (mand.)	Supervised learning phase: • Start of practical driving instruction (private and commercial) already before knowledge test • Knowledge test before accompanied phase under “AAC” model ² • Driving test after short form (driving school) or long form of practical driving instruction (“AAC” model with accompanied driving) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (36 mos. or 24 mos. under “AAC” model with vehicle marking, speed restrictions)
B	NBR	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test ² followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence)
CH	NBR	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (36 mos. probationary licence, vehicle marking)
CZ	NBR	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test exclusively after short form of practical driving instruction (training with driving instructor only) • Knowledge test and driving test usually on same day • Driving licence granted without protective regulations after driving test
DK	NBR	X (mand.)	-		(mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test exclusively after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (36 mos. probationary licence)
L	NBR	X (mand.)	-	- X	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form (exclusively driving school) or long form of practical driving instruction (“CA” model with accompanied driving) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence, lower alcohol limit)
PL	NBR	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Learner assessment (“preliminary test”) during mand. driving school training • Knowledge test after mand. theory classes • Driving test exclusively after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (12 mos. probationary licence)
A	NBR/REF	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form (exclusively driving school) or long form of practical driving instruction (“L17” model) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence, lower alcohol limit)

Country	Group	Knowledge test	Traffic perception test	Learner assessment	Driving test	Integration of the forms of testing into novice driver preparation
NL	NBR/REF	X (mand.)	X (mand.)	X (opt.)	X (mand.)	Supervised learning phase: • Start of practical driving instruction (exclusively commercial) already before knowledge test • Traffic perception and knowledge tests at same time • Opt. learner assessment (“simulated test”) • Driving test exclusively after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (60 mos. probationary licence, lower alcohol limit)
FIN	REF	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of practical driving instruction (exclusively commercial or exclusively private) already before knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (18-24 mos. probationary licence)
N	REF	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Start of practical driving instruction (commercial and private) already before knowledge test • Two learner assessments (“evaluation lessons”) and safety training as mand. training elements • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence)
S	REF	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of practical driving instruction (commercial and private) already before knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Knowledge test and driving test on same day or within a period of two weeks. • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence)
BG	-	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Learner assessment (“preliminary test”) during mand. driving school training • Knowledge test after mand. theory classes • Driving test after short form of practical driving instruction (driving instructor only) • Driving licence granted without protective regulations after driving test
CY	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Granting of learner DL and start of practical driving instruction (commercial and private) already before knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving licence granted without protective regulations after driving test
EST	-	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Learner assessment (“preliminary tests”) during driving school training • Knowledge test after mand. theory classes • Driving test after short form (exclusively driving school) or long form of practical driving instruction (combined driving school and learner DL for accompanied driving) • With accompanied driving, knowledge and driving tests before and after accompanied phase • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos., including vehicle marking, passenger restrictions)
GR	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos., including vehicle marking)
H	-	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Knowledge test after mand. theory classes • Start of mand. practical driving instruction (exclusively commercial) after knowledge test • Learner assessment (“Technical preparation of vehicle/basic driving manoeuvres”) in driving school • Driving test exclusively after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence)
HR	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test exclusively after short form of practical driving instruction (driving instructor only) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos., including exclusion of night-time driving)
IL	-	X (mand.)	-		X (mand.)	Supervised learning phase: • Practical driving instruction (exclusively commercial) only after knowledge test • Driving test after short form of practical driving instruction (driving instructor only) • Driving test followed by mand. 3-month accompanied phase • Accompanied phase followed by autonomous learning phase: • Solo driving under protective regulations (21 mos. with vehicle marking, passenger restrictions)

Country	Group	Knowledge test	Traffic perception test	Learner assessment	Driving test	Integration of the forms of testing into novice driver preparation
IRL	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving licence granted without protective regulations after driving test
IS	-	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form (exclusively driving school) or long form of practical driving instruction (accompanied driving) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (12-36 mos. probationary licence) • Mand. learner assessment ("evaluation driving lesson")
LT	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form (exclusively driving school) or long form of practical driving instruction (accompanied driving) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. vehicle marking, speed restrictions).
LV	-	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction already before knowledge test • Learner assessment ("preliminary test") in driving school • Knowledge test after mand. theory classes • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence, lower alcohol limit)
M	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of practical driving instruction already before knowledge test • Driving test after short or long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: Solo driving under protective regulations (36 mos. probationary licence)
P	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: Solo driving under protective regulations (36 mos. probationary licence)
RO	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: Solo driving under protective regulations (12 mos. probationary licence)
RUS	-	X (mand.)	-	-	X (mand.)	
SK	-	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of mand. practical driving instruction (exclusively commercial) already before knowledge test • Knowledge test after mand. theory classes • Driving test after short form of practical driving instruction (training with driving instructor only) • Driving test followed by autonomous learning phase: Solo driving under protective regulations (24 mos. probationary licence)
SLO	-	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Knowledge test after mand. theory classes • Start of mand. practical driving instruction (exclusively commercial) after knowledge test • Learner assessment ("preliminary test") in driving school • Driving test after short form (exclusively driving school) or long form of practical driving instruction (accompanied driving) • Driving test followed by autonomous learning phase: Solo driving under protective regulations (24 mos. probationary licence)
TR	-	X (mand.)	-		X (mand.)	
AUS/NSW	GDL	X (mand.)	X (mand.)	- X	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after first knowledge test • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (36-48 mos. vehicle marking, passenger restrictions, speed restrictions) • Reduction of protective regulations after first traffic perception test ("Hazard Perception Test") • DL without protective regulations after second knowledge test and second traffic perception test ("Driver Qualification Test")

Country	Group	Knowledge test	Traffic perception test	Learner assessment	Driving test	Integration of the forms of testing into novice driver preparation
AUS/QLD	GDL	X (mand.)	X (mand.)	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (36 mos. vehicle marking) • Traffic perception test (“Hazard Perception Test”) leads to reduction of protective regulations
AUS/VIC	GDL	X (mand.)	X (mand.)	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Traffic perception test before driving test • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (48 mos. vehicle marking, passenger restrictions)
CDN/NS	GDL	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. exclusion of night-time driving, passenger restrictions)
CDN/ON	GDL	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (12 mos. probationary licence, zero-alcohol rule)
CDN/QC	GDL	X (mand.)	-	X (mand.)	X (mand.)	Supervised learning phase: • Mand. driving school training with learner assessment (knowledge test) for granting of learner DL • Knowledge test and driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (24 mos. probationary licence)
NZ	GDL	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • First driving test followed by autonomous learning phase: • Solo driving under protective regulations (12-18 mos. exclusion of night-time driving, passenger restrictions) • DL without protective regulations after second driving test
USA/CA	GDL	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of practical driving instruction (with professional driving instructor) already before knowledge test • Knowledge test after mand. driving school training leads to learner DL for accompanied driving • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (12 mos. with probationary licence, passenger restrictions, exclusion of night-time driving)
USA/FL	GDL	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Learner DL for practical driving instruction (private and commercial) after knowledge test • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (up to 24 mos. with probationary licence, exclusion of night-time driving)
USA/NC	GDL	X (mand.)	-	-	X (mand.)	Supervised learning phase: • Start of practical driving instruction (with professional driving instructor) already before knowledge test • Knowledge test after mand. driving school training leads to learner DL for accompanied driving • Driving test only after long form of practical driving instruction (lay training and driving instructor possible) • Driving test followed by autonomous learning phase: • Solo driving under protective regulations (min. 6 mos. probationary licence with vehicle marking, passenger restrictions, exclusion of night-time driving)

Tab. 17: Overview of forms of testing (“X” = applicable, “-” = not applicable; grey cells = no information available; “(mand.)” = mandatory form of testing; “(opt.)” = optional form of testing; “DL” = driving licence; “mos.” = months; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Lay driver training and accompanied driving are rarely practised; ² “Apprentissage anticipé de la conduite”; ³ Under the “18M” model, solo driving under protective regulations (passenger restrictions, exclusion of night-time driving) is already possible before the driving test.

For the majority of the countries, it can be seen that only a single knowledge test and driving test must be passed to obtain a driving licence (see Table 17). In the group of major West European countries, Great Britain is the only country in which novice drivers must also take a traffic perception test. In the neighbouring countries around Germany and the reform-oriented countries, too, a knowledge test and driving test are usually the only practised forms of testing. Among the GDL countries, a traffic perception test is an additional prescribed form of testing in the Australian states of New South Wales, Queensland and Victoria.

Irrespective of the manner in which the forms of testing are implemented, their aforementioned selection and control function is always inseparable from the question as to their optimum positioning within the system of novice driver preparation. After all, given their interactions with the applied teaching/learning forms and with the legal framework underlying driver licensing, driving licence tests must be considered essential reference points for the process of driving competence acquisition and for the whole “architecture” of a system of novice driver preparation. To be able to achieve the selection function, in particular, the test demands must be designed such that, at a given moment in time, they permit valid statements on the competence acquired to date. With regard to the control function, on the other hand, the test demands must be placed in pedagogically meaningful relationship to the previous opportunities for driving competence acquisition: The tests should only assess those aspects of competence which could actually be conveyed or acquired beforehand. It can thus be assumed that the positioning of tests within a particular system of novice driver preparation, and the associated variation in the (didactic) relationship to the teaching and learning forms, also results in a differently manifested selection and control function, and contributes to a greater or lesser extent to the positive effect of the teaching and learning forms concerned and to the overall effectiveness of the system in terms of improved road safety. A number of findings and thoughts on this point are to be presented briefly in the following.

Viewing the different arrangements for integration of the forms of testing into the systems of novice driver preparation (see right-hand column of Table 17), it can be determined that different opportunities for learning precede the individual forms of testing in the various countries. Some systems specify that the knowledge test must be taken at the beginning of novice driver preparation, and that passing of this test is furthermore a prerequisite for

admission to practical driving instruction (e.g. in Ireland, Israel, Switzerland, Spain and most GDL countries). In other systems, by contrast, the knowledge test can be taken at any time before the driving test (e.g. in Germany, France, the Netherlands, Norway, Sweden). Depending on the timing of a particular test within the overall system, it is basically possible for one and the same form of testing – here the knowledge test – to be used to assess different competences, because a different extent of learning progress can be expected of the novice driver with regard to the combination of declarative knowledge (e.g. traffic rules, traffic signs) and the implicit knowledge which is only acquired and consolidated within the framework of practical driving experience.

In the architecture of some systems of novice driver preparation, such qualitative adaptation of the test demands with increasing driving and traffic competence is also reflected – it would seem – in relatively “early” knowledge tests, but then later traffic perception tests in which abilities connected with timely hazard recognition are assessed using dynamic visualisations of driving and traffic scenarios. In the Australian state of New South Wales, for example, passing of the knowledge test entitles a novice driver to commence practical driving instruction and accompanied driving. A successful driving test is then followed by an autonomous learning phase lasting at least three years, during which the passing of a traffic perception test at the earliest after 12 months leads to the lifting of certain protective regulations (e.g. speed restrictions). After at least another 24 months of solo driving under protective regulations, a further traffic perception test must be taken in combination with a second knowledge test (“Driver Qualification Test”) – passing of this test leads to the granting of a driving licence without restrictions.

Concerning the integration of the driving test into system architectures, it can be seen from Table 17 that, in some countries, it is preceded by a short form of practical driving instruction, during which merely basic driving competence is acquired within the framework of formal driving school training (e.g. in Germany, Denmark, Czech Republic, Poland). By contrast, other systems enable or even require a longer period of driving experience before the driving test (e.g. France, Austria, Switzerland and all GDL countries). It can thus be assumed that the novice drivers will display different degrees and levels of driving competence at the time of the driving test, depending on the position of the driving test within the overall system. The extended opportunities to gain practical driving experience before the driving test, in particular,

suggest that the test is then better able to achieve its control function: The prospect of mastering a given “intermediate goal” of high individual significance, namely the entitlement to drive solo, in combination with the longer period available, will likely result in more frequent use of the possibilities for (self-)evaluation, and consequently of the opportunities for practice. In addition, a greater scope of driving practice can be expected to increase the range and variance of later test performances, depending on the intensity of the individual novice driver's practice during the training phase; this improves the methodical possibilities for performance assessment during the driving test.

In some GDL countries, a further driving test must be taken after an initial phase of solo driving. This second driving test, which also places higher demands on the novice driver compared to the first driving test, realises an additional control function during the first phase of solo driving experience. In the Canadian province of Ontario, for example, passing of the “G1 Road Test” is a prerequisite for transition to a first phase of solo driving under protective regulations (e.g. restrictions concerning accompanying passengers at certain times of the day) lasting at least 12 months. For transition to solo driving without protective regulations, novice drivers are then required to pass the “G2 Road Test” as a further driving test. In New Zealand, too, it is necessary to pass two driving tests, firstly at the transition to an initial phase of solo driving under protective regulations (“Restricted Licence Test”), and later at the transition to a second phase of solo driving without special novice-specific restrictions (“Full Licence Test”).

Table 17 also shows that, alongside knowledge tests and driving tests, additional learner assessments are stipulated in some countries – usually as complements to professional driving school training. These learner assessments relate to the attainment of relatively complex learning objectives by the novice driver and possess the character of test simulations or test preparation. Significant differences are to be found with regard to the design of learner assessments. In Poland, for example, two learner assessments are completed in the driving school and take the form of prescribed test simulations or “preliminary tests” ahead of the knowledge test and driving test. In Norway, all novice drivers must attend two so-called “evaluation driving lessons” with a professional driving instructor, by way of which attainment of the learning objectives defined in the training curriculum is verified. In the Netherlands, on the other hand, a learner assessment is an optional measure, offered in the form of a “practice driving test” con-

ducted by a driving test examiner appointed by the test organisation.

Comprehensive descriptions of the individual systems of novice driver preparation, with more detailed analyses of the available teaching and learning forms and their integration with corresponding forms of testing, can be found in the Annex to this report. Thoughts on the positioning of the various forms of testing and their functional contribution to the “system architecture” are taken up and discussed further in the concluding Chapter 4. In the following, the above overview of forms of testing is to be expanded with regard to their exact country-specific implementation, starting with the knowledge test.

3.3.2 Knowledge test

The “knowledge test” (also referred to as the “theoretical driving test” or “theory test”) was described in Chapter 2.3.2 as a form of testing in which the novice driver must demonstrate adequate driving and traffic knowledge. The assessment is for the most part limited to the verification of declarative knowledge, which is formulated in the test items by way of explicit statements, rules and facts. The test items are generally presented in standardised formats (e.g. multiple-choice questions).

In the following, it is intended to show, for the different countries and groups of countries,

- under which framework conditions (test media, test participants, etc.) the knowledge test takes place,
- how the knowledge test is designed with regard to its test demands and test methods,
- which test item formats are used to assess the traffic-related knowledge of novice drivers,
- which feedback novice drivers receive on their test performance, and
- how high is the pass rate for the knowledge test.

To this end, consideration is given first to the framework conditions for test realisation. The subsequent section “Test methods” then describes the test demands placed on the novice driver in each case, for example with regard to the number of test items and the formats used. The sections “Feedback on test result” and “Pass rates”, finally, address the information offered to the driving licence applicant as evaluation of his test performance and

the proportions of candidates who complete the knowledge test successfully.

Framework conditions for test realisation

Table 18 on the next page presents first of all the overarching general conditions for the realisation of testing in the individual countries. These framework conditions concern, for example, the test medium used and the other persons present during the test beside the driving licence applicant himself.

Test medium:

As can be seen from Table 18, the computer is the test medium used in the majority of countries considered by the present project. In the group of major West European countries, Spain is the only country in which the knowledge test is conducted as a "paper-and-pencil" test. Computers are also used as the test medium in all the neighbouring countries around Germany, and likewise in all the reform-oriented countries; it must be noted, however, that a computer-based knowledge test is currently still in the process of implementation in Denmark and has thus not yet been introduced throughout the country. In the GDL countries, tests are frequently computer-based, but it is still also possible to take the test as a paper-based written test in some countries. In New Zealand, for example, this is the case because, in the course of a transition from a paper- to a computer-based test, both test media are permissible for the time being.

Test participants:

In most countries, a driving test examiner is usually responsible for test realisation. There are some cases, however, where other persons are present during the test in a supervisory role, either in addition to the examiner (e.g. in Luxembourg, Norway and Spain) or as the sole test supervisor (e.g. in Great Britain). In Sweden, such test supervisors receive introductory instruction and attend further training measures. They are granted the same authority as the driving examiner; their authorisation to conduct tests, however, applies only for the knowledge test, not for the driving test.

Further differences exist between the individual countries in respect of the number of examiners and test supervisors directly present during the test. In Belgium, Denmark and France, for example, the knowledge test is conducted by a driving examiner, whereas in Finland, neither an examiner nor a test supervisor is actually present in the test

room. In Ireland, too, the test supervisor must not always be physically present during the test; he can also make use of available installations for video monitoring of the test room. In Sweden, the number of driving test examiners or other test supervisors present depends on the number of novice drivers taking the test and on the size of the test room.

In the Czech Republic and Luxembourg, the driving instructor is permitted to be present during the knowledge test, while the presence of the driving instructor is even prescribed in Bulgaria and Slovakia. It presumably plays a role in these cases that the knowledge test and driving test are generally taken on the same day in the Czech Republic and Slovakia, and both countries also require the driving instructor to be present during the driving test (see Chapter 3.3.5).

Individual/group testing:

In all the countries covered by the present project report, the knowledge test is organised for several novice drivers at the same time (see Table 18). Against this background, the terminology "Individual test" here refers to a test situation in which the start and end of the test may vary for each individual novice driver. "Group testing", by contrast, describes a test situation in which several novice drivers all begin their answering of the test questions at the same time.

In Germany, the guidelines of the specific test organisation (Technical Examination Centre) empower the driving test examiner to decide whether knowledge tests are conducted as individual tests with a floating start time or as group tests with a common start time for all candidates. In many US states, but also in Norway, for example, the knowledge test can be taken as an individual test at any freely chosen time during the opening hours of the test organisation ("drop-in system"). In the Netherlands, on the other hand, knowledge tests are realised exclusively as group tests, in each case for approximately 40 to 50 candidates. The test questions are here not answered on an individual PC, but instead presented on a series of monitor screens in the test room, together with the possible answers; the test questions and answer options are additionally read out by the test supervisor. The novice driver is then able to submit his answer to each test item via an assigned console.

Country	Group	Test medium		Test participants			Individual/group testing	
		Computer	Paper and pencil	Driving examiner	Test supervisor	Driving instructor	Individual test	Group test
D	WEU	X	-	X	-	-	X	X
E	WEU	-	X	X	X	-	-	X
GB	WEU	X	-	-	X	-	X	-
I	WEU	X	-					
F	WEU/NBR	X	-	X	-	-	-	X
B	NBR	X	-	X	-	-	X	X ¹
CH	NBR	X	-	X	X	-	X	X
CZ	NBR	X	-	X	-	X	-	X
DK	NBR	X	X	X	-	-	-	X
L	NBR	X	-	X	X	X	X	-
PL	NBR	X	-	X	-	-	-	X
A	NBR/REF	X	-	X	X ²	-	-	X
NL	NBR/REF	X	-	-	X	-	-	X
FIN	REF	X	-	-	-	-	X	-
N	REF	X	-	X	X	-	X	-
S	REF	X	-	X	X	-	X	-
BG	-	-	X	X	-	X	-	X
CY	-							
EST	-	X	-	X	X ³	-	X	X
GR	-	X	-	X	-	-	-	X
H	-	X	-	X	-	-	-	X
HR	-	X	-	X	-	-	-	X
IL	-	-	X					
IRL	-	X	-	X	X	-	X	-
IS	-	-	X	X	-	-	X ⁴	X
LT	-	X	-	X	-	-	-	X
LV	-	X	-	X	-	-	-	X
M	-	X	-					
P	-	-	X	X	-	-	-	X
RO	-	X	X	X	-	-	X	X
RUS	-	X	X					
SK	-	-	X	X	-	X	-	X
SLO	-	-	X	X	-	-	-	X
TR	-	X	-	X	-	-	-	X
AUS/NSW	GDL	X	-				X	-
AUS/QLD	GDL							
AUS/VIC	GDL	X	X	-	X	-	X	-
CDN/NS	GDL							
CDN/ON	GDL	X	X	X	-	-	X	-
CDN/QC	GDL	X	-	X	-	-	X	-
NZ	GDL	X	X					
USA/CA	GDL							
USA/FL	GDL	X	-					
USA/NC	GDL							

Tab. 18: Knowledge test – Framework conditions for test realisation (“X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Group tests are conducted for foreign-language candidates and those with hearing or learning difficulties. ² Driving test examiner from the list of appointed examiners (or a suitable test supervisor); ³ Test may also be conducted by specially qualified staff of the test organisation. ⁴ Individual tests only in exceptional cases, where a novice driver faces certain difficulties in the test situation.

Exceptions to the usual test procedure:

In general, the analysed countries make provisions for deviation from the standard test procedure where a test candidate requires special assistance to complete the test items. Possible occasions for such exceptions include health-related impairments, reading difficulties or also insufficient knowledge of the language of the country in which the test is taking place. In the Netherlands, for example, the special needs of certain driving licence applicants are taken into account by conducting the knowledge test with the candidate alone. In Germany, too, tests may be conducted with a single candidate in exceptional cases if the candidate faces particular difficulties in the standard test situation.

To overcome a possible lack of language knowledge on the part of the test candidate, many countries set the test questions not only in the national language, but also in various further languages (e.g. in Austria, Belgium, Germany, Finland, Greece, Great Britain, Italy, Latvia, Luxembourg, Malta, the Netherlands and New Zealand). In Austria, for example, the test questions can also be answered in English, Croatian, Slovenian and Turkish. Great Britain even offers audio translations in 21 different languages, which can then be heard over headphones to supplement the standard test presentation.

Language difficulties may also be solved by engaging the services of an interpreter. In those countries in which the regular test questions can be presented in additional languages, this is an opportunity to cater for further candidate languages. Where no foreign-language test questions are available, an interpreter is the only possibility to enable the knowledge test to be taken by candidates without sufficient knowledge of the local language (e.g. in Denmark, France and Lithuania).

Test methods

The number of test items to be answered within a certain period of time is a meaningful descriptor for the methodical design of the knowledge test and for the corresponding demands placed on the test candidate. In addition, this section on test methods also considers more closely the test item formats used and the realised possibilities for the visualisation of traffic situations and other test content.

Number of test items:

Significant differences are found between the countries analysed in this report with regard to the number of test items to be answered in the knowledge test. The following Table 19 shows the number of test items to be answered in each case, alongside the minimum number of correctly solved test items required to pass the test.

As can be seen, the number of test items to be answered varies between 18 test items in Poland and 120 test items in Turkey. Among the major West European countries, the lowest figure is 30 test items in Germany, Spain and Italy⁴⁷, while the most extensive test, namely 50 test items, is set in Great Britain. In the neighbouring countries around Germany, the lowest numbers reported are 18 test items in Poland and 20 test items in Luxembourg. Novice drivers in Denmark and the Czech Republic must each answer 25 test items during the knowledge test; in Switzerland and Belgium, by contrast the knowledge test comprises double this number of test items. The numbers of test items are also relatively high in all the reform-oriented countries, for example 64 test items in Austria, 60 test items in Norway and 65 test items in Sweden.⁴⁸ In the GDL countries, the number of test items to be answered varies between 30 in the Australian state of Queensland and 64 in the Canadian province of Québec.

Assessment of test items:

The test demands are determined not only by the number of test items to be answered, but also by the permissible number of incorrect answers with which the test is still deemed passed. The overview shows that rather different approaches are to be found with regard to the assessment of test performance, as can be seen from Table 19. In Greece, for example, the test is already failed if more than one of the total of 30 test items is not answered correctly. In all the other countries covered by the present report, more than one incorrect answer is tolerated.

⁴⁷ In Italy, the knowledge test comprises only 10 separate test items, for which each of the answer options offered must be assessed individually in the sense of a "true/false" question".

⁴⁸ The 90 test items specified for Iceland consist of a total of 30 statements, for which three corresponding answer possibilities are offered in each case.

Country	Group	Numbers and assessment of test items		Time allowed	
		Correct answers required / total number	Additional remarks	Overall test duration	Time limit per test item
D	WEU	(W ¹)/30	¹ 2-5 points; min. 100 of 110 points	-	-
E	WEU	27/30	Equal weighting	30 minutes	
GB	WEU	43/50	Equal weighting	40 minutes	-
I	WEU	26/30 ²	² 10 test items with three answer options each	30 minutes	
F	WEU/NBR	35/40	Equal weighting	90 minutes	X
B	NBR	41/50	Equal weighting	25 minutes	X
CH	NBR	(W ³)/50	³ Min. 126 of 140 points	45 minutes	-
CZ	NBR	(W ⁴)/25	⁴ 1-4 points; min. 43 of 50 points	30 minutes	-
DK	NBR	20/25	Equal weighting	25 minutes	-
L	NBR	16/20	Equal weighting	20 minutes	-
PL	NBR	16/18	Equal weighting	25 minutes	-
A	NBR/REF	(W ⁵)/64	⁵ 1-5 pts.; min. 60% and min. 80% of supp. items	45 minutes	-
NL	NBR/REF	35/40 ⁶	Equal weighting	30 minutes	X
FIN	REF	49/60	Equal weighting	30 minutes	X
N	REF	38/45	Equal weighting	90 minutes	-
S	REF	52/65 ⁷	Equal weighting; ⁷ plus 5 extra "trial items"	50 minutes	-
BG	-	55/60	Equal weighting	40 minutes	-
CY	-				
EST	-	26/30	Equal weighting	30 minutes	-
GR	-	29/30	Equal weighting	35 minutes	-
H	-	(W ⁸)/55	⁸ 1 or 3 points; min. 65 of 75 points	55 minutes	
HR	-	(W ⁹)/38	⁹ Min. 108 of 120 points	45 minutes	-
IL	-	26/30	Equal weighting		
IRL	-	35/40	Equal weighting	45 minutes	-
IS	-	83/90	Equal weighting	45 minutes	-
LT	-	24/30	Equal weighting	30 minutes	-
LV	-	27/30	Equal weighting	30 minutes	-
M	-	30/35	Equal weighting	45 minutes	-
P	-	27/30	Equal weighting	30 minutes	-
RO	-	22/26	Equal weighting	30 minutes	-
RUS	-	18/22	Equal weighting	20 minutes	
SK	-	(W ¹⁰)/27	¹⁰ Min. 50 of 55 points	20 minutes	-
SLO	-	(W ¹¹)/30	¹¹ 2-5 points; min. 99 of 110 points	45 minutes	-
TR	-	¹² -/120	¹² No information on min. number of correct answers	120 minutes	-
AUS/NSW	GDL	41/45 and -/15 ¹³	¹³ Second knowledge test with 15 items	-	-
AUS/QLD	GDL	27/30	Equal weighting		
AUS/VIC	GDL	25/32	Equal weighting	20 minutes	-
CDN/NS	GDL	32/40	Equal weighting		
CDN/ON	GDL	32/40	Equal weighting	-	-
CDN/QC	GDL	48/64	Equal weighting	-	-
NZ	GDL	32/35	Equal weighting		
USA/CA	GDL	39/46	Equal weighting		
USA/FL	GDL	30/40	Equal weighting	-	X
USA/NC	GDL	20/25	Equal weighting		

Tab. 19: Knowledge test – Number of test items and test duration ("X" = applicable, "-" = not applicable; grey cells = no information available; "(W)" = Weighted assessment; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

⁶ The test comprises not only a section to query knowledge (40 items, of which at least 35 must be answered correctly), but also a hazard perception section (25 items, of which at least 12 must be answered correctly). The test methods applied in the hazard perception section are described under the form of testing "traffic perception test" in Chapter 3.3.3.

The number of mistakes tolerated varies from country to country. If the permissible number of incorrect answers is placed in relation to the total number of test items presented, then the highest proportion of mistakes tolerated is 25 per cent (e.g. Florida, Québec). By contrast, comparatively low proportions of incorrect answers, namely 10 per cent or less, are found in Greece, Spain, Portugal, Bulgaria and New Zealand, for example. In the majority of countries considered by the project, the proportion of incorrect answers with which it is still possible to pass the knowledge test lies between around 11 and 20 per cent of the test items to be answered.

In a few countries, a maximum number of incorrectly answered test items is defined not only for the test as a whole, but also for certain subsections or topics. In Finland, for example, at least 49 of the total of 60 test items must be answered correctly to pass the knowledge test; in addition, a distinction is made between the image-based questions – where at most eight of the 50 test items may be incorrect – and text-based questions – where incorrect answers are tolerated for up to three of the ten test items. In the Australian state of Queensland, a total of 27 of the 30 test items must be answered correctly, including at least nine out of ten “give way” questions and at least 18 out of 20 questions relating to “road rules”. In the Canadian province of Ontario, the knowledge test comprises 20 test items on the subject of “traffic rules/traffic knowledge” and 20 items on “road signs”. In each of the two sections, at least 80 per cent of the answers must be correct, i.e. at least 16 answers in each section.

In many countries, the individual test items carry equal weight for the assessment of test performance; i.e. each correct answer earns one point, or else one point is deducted from an initial points budget for each incorrect answer. In other countries, by contrast, a greater weighting is assigned to certain test items (see label “W” in Table 19).

As can be seen from the table, Germany is the only one of the major West European countries which uses weighted test items. Here, each of the total of 30 test items carries between two and five error points for an incorrect answer. The test is failed if the candidate accumulates more than ten such error points, or if incorrect answers are given to two questions weighted with five points. In the neighbouring countries around Germany, weighted test assessments are found in Switzerland and the Czech Republic, but only in Austria among the reform-oriented countries. In the GDL countries, on the other hand, the test items are assessed with

equal weighting in all the systems analysed. Further countries which use weighted test items are Croatia, Slovenia, Slovakia and Hungary.

Test duration and time allowed for completion:

With regard to the time allowed for completion of the test, where such a time limit is specified, it must be distinguished whether the available time refers to the whole test, or whether the time allowed for the answering of each single test item is limited: While a time specification for overall test completion allows the possibly greater time spent on one item to be compensated by faster answering of another test item, this is not possible when a separate time limit is specified for each individual answer. Table 19 provides an overview of the time allowances specified in the various systems of novice driver preparation for completion of the knowledge test. Where the time limits apply expressly to the answering of individual test items, this is indicated accordingly in the last column of the table (see “Time limit per test item”).

It can be seen from the table that, of the major West European countries, only France specifies a time limit for the answering of individual test items. In Germany and Great Britain, by contrast, the test duration is unlimited, and merely a guideline value is given as orientation (the guideline value for test completion in Great Britain, for example, is 40 minutes; in Germany, the typical test duration is around 30 minutes). Among the neighbouring countries around Germany and the reform-oriented countries, time limits are specified for the individual test items in Belgium, the Netherlands and Finland. In the group of GDL countries, time limits are in most cases applicable only to the test as a whole.

Generally speaking, item-specific time limits are found in only a few countries, namely in Belgium, France, Finland, the Netherlands and in the US state of Florida. In France, the total duration of the knowledge test is approximately 90 minutes; in addition to the time spent on actual completion of the test, this includes also time for verification of the candidate's identity before commencement of the test, and for test evaluation and feedback on the result obtained at the end of the test. Each test item must be answered within 20 seconds of presentation to the candidate. In Belgium, the overall test duration is around 25 minutes. During this period, the test items can be called up at the candidate's individual pace. Once a test item is called up, however, it must be answered within 15 seconds. In Finland, a maximum of ten seconds is allowed for the answering of image-based test items, and a maximum of 30 seconds for the answering of text-based items. In the Netherlands,

where the test items are presented on several monitors and additionally read out by a test supervisor, a limited time for answer submission begins immediately after reading of the test item. The time allowed in each case depends on the test item format (true/false question, multiple-choice question, gap-fill question) and lies between eight and 15 seconds.

In those countries in which the driving licence applicant is permitted to organise the time for completion of the test himself, it is with paper-and-pencil tests generally possible, and with computer-based tests often possible to leave a particular test item unanswered for the time being and to return to the item concerned later (e.g. in Germany and Estonia). It is furthermore possible to correct previously given answers during the overall period of the test. In the Australian state of New South Wales, on the other hand, the knowledge test is terminated prematurely as soon as the candidate has given more incorrect answers than is permissible for successful completion.

In New Zealand, novice drivers who take a “paper-and-pencil” test also receive immediate feedback as to whether a test item has been answered correctly or incorrectly: Each answer option on the test sheet is represented by a special patch which can be scratched off by the test candidate. In accordance with the test instructions, the patches should only be scratched from those fields which are considered to show the correct answer to a particular test item. Under each patch, a tick is revealed if the answer is a correct alternative, or else a cross if the answer is not correct. The candidate thus sees immediately whether the scratched patch corresponds to a correct answer; later correction of the answer is then no longer possible.

Test item formats:

To be able to assess the required traffic-related knowledge by way of a knowledge test, the corresponding test contents must be operationalised in suitable formats. In the present context, it is not feasible to attempt a detailed explanation of all the different test item formats, with their specific advantages and disadvantages from the perspective of test theory.⁴⁹ A few of the test item formats which are in common use within the framework of the knowledge test in different countries are nevertheless outlined briefly in the following:

- True/false questions: This test item format demands a decision on whether a presented statement is correct or incorrect. To answer such test items, the candidate must thus be presented two alternatives for selection (e.g. “Yes” and “No”, or “True” and “Not true”).
- Multiple-choice questions: For such test items, different answer options are presented alongside a statement or question. The candidate is then required to mark those answer options which he considers to be correct. It is furthermore possible to specify whether only one of the answers is correct, or else several answers could be applicable; it may sometimes even be the case that none of the answer options are correct.
- Assignment and sorting questions: With this test item format (in the following referred to simply as “sorting questions” for the sake of clarity), certain facts or statements must be placed in their correct relationship to each other or else in a correct order. This could involve arranging given actions or events in the correct time sequence, for example.
- Gap-fill questions: Whereas answer options are already specified as the solutions to true/false or multiple-choice questions, which thus constitute “closed-response” items, gap-fill questions must be answered “freely”, either by way of a numerical or text input as direct answer to a question, or else by completing the missing elements of a statement.

The first columns of Table 20 on the next page indicate which of the described test item formats are used in the knowledge test in the different countries and country groups.

⁴⁹ A corresponding overview is to be found, for example, in LIENERT and RAATZ (1998) or – with regard to the theoretical driving test – in BÖNNINGER and STURZBECHER (2005).

Country	Group	Question format				Test item visualisation		
		True/false questions	Multiple-choice questions	Sorting questions	Gap-fill questions	Graphics	Photos	Animated scenarios
D	WEU	-	X	-	X ¹	X	X	-
E	WEU	X	X	-	-	X	X	-
GB	WEU	-	X	-	-	X	X	-
I	WEU	X	X	-	-			
F	WEU/NBR	X	X	-	-	X	X	X
B	NBR	-	X ²	-	-	X	X	-
CH	NBR	-	X	-	-	X	X	-
CZ	NBR	X	X	-	-	X	X	-
DK	NBR	X	X	-	-	X	X	-
L	NBR	X	X	X	X ³	X	X	-
PL	NBR	-	X	-	-	X	X	-
A	NBR/REF	-	X	-	-	X	X	-
NL	NBR/REF	X	X	-	X	X	X	-
FIN	REF	X	X	-	-	X	X	-
N	REF	X	X	-	-	X	X	-
S	REF	X	X	X	-	X	X	-
BG	-	-	X	-	-	X	X	-
CY	-							
EST	-	X	X	-	X ⁴	X	X	-
GR	-	-	X	-	-	X	X	-
H	-	X	X	X	-	X	X	-
HR	-	X	X	-	X ⁵	X	X	-
IL	-	-	X	-	-			
IRL	-	-	X	-	-	X	X	-
IS	-	X	X	-	-	X	-	-
LT	-	-	X	-	-	X	X	-
LV	-	X	X	-	-	X	X	-
M	-							
P	-	X	X	-	-	X	X	-
RO	-	-	X	-	-	-	X	-
RUS	-	-	X	-	-			
SK	-	-	X	-	-	X	-	-
SLO	-	X	X	-	-	X	X	-
TR	-							
AUS/NSW	GDL	-	X	-	-	X	-	X
AUS/QLD	GDL	-	X	-	-			
AUS/VIC	GDL	-	X	-	-	X	-	-
CDN/NS	GDL	-	X	-	-			
CDN/ON	GDL	-	X	-	-	X	X	-
CDN/QC	GDL	-	X	-	-	X	-	-
NZ	GDL	X	X	-	-	X	X	-
USA/CA	GDL	-	X	-	-			
USA/FL	GDL	-	X	-	-			
USA/NC	GDL	-	X	-	-			

Tab. 20: Knowledge test – Question formats and test item visualisation (“X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Numerical inputs; ² The question is displayed on the screen and at the same time read out via headphones. ³ Numerical inputs;

⁴ Numerical and text inputs; ⁵ Numerical inputs

It is revealed that multiple-choice questions are used in all the country groups, and the knowledge test also includes true/false questions in many countries. Other test item formats, on the other hand, are significantly less common. In the group of major West European countries, it can be seen that the use of gap-fill questions is only usual in Germany. Among the neighbouring countries around Germany and the reform-oriented countries, such questions are only used in Luxembourg and the Netherlands; sorting questions, furthermore, are encountered in Luxembourg and Sweden. In the GDL countries, by contrast, multiple-choice questions are in practically all cases the only test item format used.

Viewed overall, it must be concluded that multiple-choice questions are the most widespread test item format in the knowledge test; they are apparently in use in every country. There are nevertheless differences with regard to the methodical implementation of this format (see above): In Germany, for example, either two or three possible answers are presented for each test item, whereas there are always exactly four answer options in Israel. The number of possibly correct answers is similarly handled differently in the individual systems. In some countries, the candidate is always required to identify one of the several alternatives as the correct answer (e.g. in Belgium and Bulgaria). In other countries, there may also be test items for which more than one answer option is correct (e.g. in Germany and Austria), or possibly even none of the alternatives are applicable (e.g. in Italy).

In Austria, the multiple-choice format is used to realise two-tier test items, where the correct answering of a first question leads to the presentation of a supplementary question on the same general subject. Several test items are structured in this way as main and supplementary questions, in which case the latter addresses extended knowledge of the subject concerned. This test item implementation can be illustrated by way of the following example:

- Main question: “You are approaching a controlled junction at which the traffic lights show green. An emergency vehicle has just pulled up to the stop line on the intersecting road. What must you expect in this situation?”
 - (1) If I brake suddenly, the vehicle behind could run into my tail.
 - (2) The emergency vehicle will enter the junction despite the red lights.
 - (3) Other vehicles will enter the junction immediately behind the emergency vehicle.
 - (4) The emergency vehicle will wait at the stop line.
- Supplementary question: “How must you react when an emergency vehicle approaches from behind?”
 - (1) I must accelerate and drive ahead of the emergency vehicle, irrespective of the otherwise applicable speed limit.
 - (2) I must make way for the emergency vehicle, so that I can then drive directly behind it.
 - (3) I can ignore the emergency vehicle.
 - (4) I must make way for the emergency vehicle.

If the main question is not answered correctly, the supplementary question is not presented, and thus no points are gained for either the main or supplementary question. If the main question is answered correctly, but the answer to the supplementary question is not correct, the corresponding points are still awarded for the main question.

In Great Britain, the multiple-choice questions are embedded in a broader traffic-related context within the framework of so-called “case studies”. A total of five multiple-choice questions then refer to each such case study:

- Case study: “You decide to visit your friend who lives about 20 miles away. The journey will take you on various roads, including country lanes and A-roads. You’ve been there before, so you think you know the way. You also have a mobile phone with you, so you will be able to ring for directions if you get lost. During the journey, you go the wrong way and need to turn round. Later on, you decide to ring your friend to make sure you are still travelling in the right direction.”
- Question: During your journey, you ring your friend. What is the safest way for you to use your mobile phone? (Mark one answer):
 - Find a suitable place to stop
 - Travel slowly on a quiet road
 - Use hands-free equipment ...

In Sweden, multiple-choice questions are also used to operationalise test demands such as the identification of situation cues in images or the comparison of different traffic situations.

Test item visualisation:

A further relevant aspect of the design of multiple-choice test items (and likewise of any other test item format) is the manner in which traffic situations and other traffic-related facts are presented. This may be achieved solely by way of a short textual description, but can also include additional pictorial information. As can be seen in the right-hand columns of Table 20, practically all countries use not only short texts, but also graphics and photographs for the visualisation of traffic situations. In most cases, the traffic situation is depicted from the candidate's perspective as a road user (e.g. in Luxembourg, Germany, Denmark, France). There are some countries, however, in which situations are also presented as bird's-eye views (e.g. Ireland, Belgium, Bulgaria, Lithuania), and the Canadian province of Québec even uses exclusively the bird's-eye perspective.

With the availability of the computer as a test medium, it is feasible to render the typically dynamic nature of traffic situations in the form of "dynamic (driving) scenarios". Currently, however, little use seems to be made of this possibility – at least within the framework of the knowledge test⁵⁰. One of the few countries is France, where the use of animated scenarios to visualise traffic circumstances is limited to the depiction of traffic lights and turning indicators. In the Australian state of New South Wales, the "Driver Qualification Test" (see Chapter 3.3.1) includes multiple-choice questions for which the relevant traffic circumstances are described either exclusively by way of short texts, by texts in combination with static images, or by texts in combination with dynamic scenarios.

Test contents

Minimum requirements to be met by driving licence tests have been anchored in the EU Directive on Driving Licences. Under the heading "Theory test", these requirements refer to the following aspects of test content, which should thus be covered by the test items to be completed by licence applicants (here in simplified summary for the sake of clarity):

- Road traffic regulations (road signs, rights of way, speed limits);
- Rules concerning administrative documents;
- Alertness and attitude to other road users;
- Risk factors related to particularly vulnerable categories of road users;
- Behaviour in the event of an accident;

- Effects of state of mind, fatigue, alcohol, drugs and medicinal products on alertness and driving behaviour;
- Risks in connection with other types of vehicles;
- Risks related to weather and road conditions;
- Safety factors relating to the vehicle, loads and the persons carried;
- Typical vehicle faults and defects;
- Environmentally aware driving.

The test contents specified in the EU Directive on Driving Licences are formulated rather generally, and their implementation in actual test items remains the responsibility of the individual EU member states. Differences exist above all with regard to the number of test items used and the thematic structuring of these test items. Among the major West European countries, for example, around 950 different test items are available for use in the knowledge test for licence class B in Germany, compared to only around 580 test items in France, 1050 test items in Great Britain and even 1600 test items in Spain. In the neighbouring countries around Germany and the reform-oriented countries, too, the number of test items varies significantly from country to country, namely from 300 test items in Finland (approx. 250 items using images and a further 50 purely textual test items) up to 1600 test items in the Netherlands. There are no systematic differences to be recognised between the country groups. In the group of GDL countries, around 320 test items are reported by the Australian state of Victoria and around 210 test items by the Canadian province of Québec.

In the individual countries, the test items are usually categorised thematically and assigned to a particular subject area. This categorisation is in some cases (e.g. Germany, Belgium) aligned directly to the required areas of test content listed in the EU Directive on Driving Licences (see above). In Germany, an official catalogue of test questions assigns each of the available test items either to a so-called "basic section" applicable for all vehicle classes, or to a class-specific "supplementary section". Within each section, the test items are then categorised according to the eight overall subject areas "Hazards", "Behaviour in road traffic", "Right of way", "Traffic signs", "Environment protection", "Regulations on the use of motor vehicles", "Technical aspects of a motor vehicle" and "Qualification and fitness to drive"; most of these subject areas then also comprise further subcategories. In addition, the catalogue indicates the content area of the EU Directive on Driving Licences to which the

⁵⁰ Dynamic presentations of traffic situations are a characteristic design feature in traffic perception tests, and as such will be discussed further in Chapter 3.3.3.

test item refers. The Austrian system similarly differentiates between generally applicable and class-specific test items. The test items belonging to the so-called “General test contents” are categorised under 14 different subject headings (e.g. “Road signs”, “Technical aspects of a motor vehicle”, “Crossroads and junctions”). Alongside, three thematic categories are defined for the “Class-specific questions” (e.g. “Legal provisions relating to class B”). In Norway, the categorisation produces nine subject areas (e.g. “Vehicles and loads”, “Persons in road traffic”, “Road traffic rules”), whereas Sweden operates with five subject areas (e.g. “Environment”, “Road safety”, “Traffic rules”). In the Canadian province of Québec, only four subject areas are used to classify the test items (e.g. “Driving techniques” or “Behaviour on the road”). It can be determined, therefore, that – even though the required knowledge base for safe participation in motorised road traffic is hardly likely to differ to any appreciable extent from country to country – there are apparently no internationally common systems by which to categorise the corresponding test items. Whether the category systems in use possess theoretical and empirical foundations, or simply represent the outcome of historical developments, could not be clarified within the scope of the current research.

Feedback on test result

In Chapter 2.3.2, it was already mentioned that test situations can also be viewed as teaching/learning situations, and that they should also bring learning gains for the driving licence applicant. To achieve this intention, it is necessary for the candidate to receive qualified feedback on his test performance, and that in a form which permits simple recognition of his further learning needs. Alongside the mere notification of whether the knowledge test was passed or failed, such more advanced feedback must also provide information relating to the individual test items and the answers given by the candidate. This feedback can be given in various ways. In many countries, the candidate is presented with a test report or computer print-out containing information on the result obtained and, in some cases, also on any knowledge deficits which were revealed. In a few countries, the test result is displayed exclusively on the monitor screen of the test computer (e.g. in Estonia), or else communicated verbally by the driving test examiner or test supervisor.

The main body of Table 21 below indicates the type of feedback which the driving licence appli-

cant receives after completing the knowledge test – in addition to communication of the overall test result, i.e. whether the test was passed or failed. It can be seen from the table that the majority of the countries considered by the present report provide candidates with information on the correctly and incorrectly answered test items after the test. In the group of major West European countries, France only offers feedback with reference to the subject areas in which deficits have been identified, but not on the answers to individual test items. Such exclusively topic-referenced feedback is also found in the Netherlands in the group of neighbouring countries around Germany, and in the Australian states of New South Wales and Victoria in the group of GDL countries. In the Netherlands, where a time limit applies for individual test items, the feedback also indicates whether the given answers were too late or incorrect, or whether questions were simply left unanswered. Among the neighbouring countries around Germany, candidates in Denmark receive no feedback beyond a statement that the knowledge test was passed or failed. In Luxembourg, the test outcome (pass or fail) is displayed on the screen; in addition, the candidate sees how many test items were answered correctly in which subject areas, how many correct answers are required in each subject area to pass the test, and how many points out of the possible maximum were scored. In Belgium, the candidate is able to review any incorrectly answered questions on the screen, and is at the same time shown the correspondingly correct answers.

Pass rates

The right-hand column of Table 21 shows the knowledge test pass rates for the countries covered by the project. The figures indicate that, in most countries, approximately two-thirds to three-quarters of the driving licence applicants pass the knowledge test at the first attempt. Among the major West European countries, the lowest pass rate is found in Spain, namely 30 to 45 per cent. The pass rates are similarly reduced in a number of the neighbouring countries around Germany and reform-oriented countries: 59 per cent in Belgium, 50 per cent in the Netherlands, 51 per cent in Luxembourg, and 52 per cent in Norway. Overall, the pass rate for the knowledge test is highest in the group of GDL countries, and there in particular in the Australian state of Victoria with 90 per cent.

Country	Group	Information included in feedback on test performance				Pass rate
		Test items answered correctly	Test items answered incorrectly	Subject areas with deficits	Total points score	
D	WEU	X	X	X	X	~ 75%
E	WEU	X	X	-	-	~ 30-45%
GB	WEU	X	X	X	X	~ 72%
I	WEU					
F	WEU/NBR	-	-	X	-	~ 69%
B	NBR	-	X	-	-	~ 59%
CH	NBR	X	X	-	X	~ 73%
CZ	NBR	X	X	-	X	~ 70%
DK	NBR	-	-	-	-	~ 76%
L	NBR	-	X	X	X	~ 51%
PL	NBR	-	-	-	X	~ 77%
A	NBR/REF	X	X	-	X	~ 75%
NL	NBR/REF	-	-	X	-	~ 50%
FIN	REF	X	X	-	X	~ 80%
N	REF	-	X	X	-	~ 52%
S	REF	-	X	X	X	~ 72%
BG	-	X	X	-	X	~ 50%
CY	-					
EST	-	X	X	-	X	~ 73%
GR	-	X	X	-	X	~ 70%
H	-	X	X	-	-	~ 65%
HR	-	X	X	X	X	~ 68%
IL	-					
IRL	-	-	-	X	-	~ 66%
IS	-	X	X	-	-	~ 70%
LT	-	X	X	-	X	~ 78%
LV	-	-	X	-	-	~ 80%
M	-					~ 75%
P	-	-	X	-	-	~ 56%
RO	-	X	X	-	X	~ 40-50%
RUS	-					
SK	-	-	-	-	X	~ 80%
SLO	-	X	X	X	X	~ 73%
TR	-					~ 75%
AUS/NSW	GDL	-	-	X	X	~ 65%
AUS/QLD	GDL					
AUS/VIC	GDL	-	-	X	X	~ 90%
CDN/NS	GDL					
CDN/ON	GDL	-	X	-	-	not recorded
CDN/QC	GDL	-	-	-	X	~ 75%
NZ	GDL	X	X	-	X	
USA/CA	GDL					
USA/FL	GDL					
USA/NC	GDL					

Tab. 21: Knowledge test – Feedback on test performance and pass rates (“X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

If the knowledge test is not passed at the first attempt, it must be taken again at a later date. In many cases, a certain period of time must lie between the first attempt and the repeat attempt. In Belgium, for example, it is possible to attend a repeat test on the next working day, whereas at least a week must lie between two attempts in Estonia, and at least 14 days must pass before a failed knowledge test can be repeated in Germany.

To conclude, it can be determined that the knowledge test is found as a form of testing in all the countries considered by the present report. The test demands, however, differ evidently from one country to another. These differences relate firstly to qualitative aspects, as reflected in significant variation in the number of test items to be answered by the candidate, and in the diversity of assessment criteria (e.g. different proportions of correctly answered test items to pass the test, different weighting systems). At the same time, the countries can also be distinguished with regard to the specified test contents and their methodical operationalisation. Conspicuous aspects in this context are the different forms of visualisation used to present the test items (text only, static images, dynamic scenarios) and the time limits specified for the answering of individual test items in some countries. One consequence of limiting the available response time is that the test assesses not only traffic-related knowledge, but also the candidate's speed of perception, the so-called "P factor" defined by THURSTONE (1944). Consistent with the fundamental differences between power and speed tests according to LIENERT and RAATZ (1998), this may lead to impairment of the validity of test results achieved under time pressure. Furthermore, again due to the necessary speed component, successful completion of a test subject to time limits could be more strongly dependent on the age and motivation of the candidate than an equivalent test realised without time limit; this could also lower the acceptance of the test method (BÖNNINGER & STURZBECHER, 2005). The discussion of these correlations will be taken up once more in Chapter 4.

Last but not least, significant differences exist between the various countries with regard to the position of the knowledge test within the overall system of novice driver preparation. In some countries, the knowledge test is already taken at a very early stage of the process of novice driver preparation, and thus assumes the function of an "entry test", by which the knowledge prerequisites for participation in subsequent, correspondingly supervised training in real traffic are verified. In other countries, by contrast, there are no such binding stipu-

lations on the timing of the knowledge test, i.e. it can be taken at any time before the driving test. One question to be addressed in the final discussion of the project findings (see Chapter 4) thus concerns the extent to which the different positioning influences fulfilment of the control function assigned to the knowledge test.

3.3.3 Traffic perception test

In the majority of countries considered by the present project, aspects of traffic perception and hazard recognition are assessed exclusively within the framework of the knowledge test, and there by way of the associated test methods (predominantly multiple-choice test items, see Chapter 3.3.2). There are nevertheless a few countries, namely Great Britain, the Netherlands and the Australian states of Queensland, New South Wales and Victoria, where a traffic perception test (also entitled the "Hazard Perception Test") is used to assess timely traffic-related perception and the recognition of relevant hazards as an independent form of testing (see Chapter 2.3.2) alongside the knowledge test. The method underlying this form of testing is generally to demand a correct reaction or the correct "driving decision" in a displayed scenario; at the same time, non-verbal response is also measured (e.g. the reaction time before a computer input). The following sections describe in detail the methodical design of the traffic perception tests conducted in the five aforementioned countries, and the manner in which such tests are integrated into the national systems of novice driver preparation.

Great Britain (WEU):

In Great Britain, driving licence applicants must take a traffic perception test ("Hazard Perception Test") immediately following the knowledge test, i.e. before attempting the practical driving test. This test was already introduced in 2002 and comprises 14 one-minute video sequences in which a drive is presented from the driver perspective. As soon as the candidate recognises a hazardous situation, this must be indicated by clicking with the mouse. Thirteen of the video sequences contain exactly one hazard cue. In one case, there is also a second hazard cue to be identified; the candidate, however, is not informed as to the video sequence concerned. Test performance is assessed by way of the candidate's speed of reaction. A maximum of five points is awarded for each hazard to be identified, depending on the speed of the corresponding reaction. The assessment is weighted according to how early the development of a haz-

ardous situation is recognised and when the candidate reacts accordingly. With a total of 15 hazard cues to be identified (in the 14 video sequences), the maximum attainable score is 75 points; the candidate must collect at least 44 points to pass the traffic perception test.

Netherlands (NBR/REF):

Before taking the practical driving test and before being allowed to commence solo driving, novice drivers in the Netherlands must complete a computer-assisted test which comprises firstly a traffic perception test (Part 1 “Hazard recognition”) and immediately thereafter a knowledge test (Part 2; see Chapter 3.3.2). To pass the first part of the test, at least 12 of the total of 25 test items must be answered correctly. These test items are presented in the form of photographs of traffic situations; the task for the candidate is to determine the appropriate reaction in the given situation. To this end, he must select one of the three reaction options offered:

- “Apply the brakes” (i.e. slow down or even bring the vehicle to a halt),
- “Take foot off the accelerator” (i.e. establish a reserve of time and mental resources for information acquisition and information processing in the developing traffic situation, and thus the readiness to react accordingly, if necessary), or
- “Do nothing” (i.e. continue along the road at constant speed).

The traffic situations are depicted from the driver perspective (with information in the mirrors and with turn indicators and speedometer visible). The candidate is allowed eight seconds to enter the chosen answer to each test item.

Australia/Queensland (GDL):

In the Australian state of Queensland, successful completion of a traffic perception test is a prerequisite for the graduation from a “P1 licence” to a “P2 licence”; this graduation lifts certain protective regulations applicable to solo driving (see Chapter 3.2.9). The traffic perception test is an online test and is intended to measure the driver's ability to anticipate, recognise and react appropriately to different hazardous situations in road traffic. The hazards to be identified relate to possible collisions with other road users (e.g. other motor vehicles, pedestrians, cyclists) which the candidate could avoid by either slowing down or changing course. The test consists of a series of real-life film clips, in which the candidate must click on the screen with the mouse to indicate the particular feature of the traffic situation which demands a response by the

driver. It records both whether a potential hazard is identified and how quickly the candidate reacts to the hazard cue.

Australia/New South Wales (GDL):

In the Australian state of New South Wales, a traffic perception test is stipulated at the earliest 12 months and at the latest 24 months after the start of solo driving; if the test is passed, some of the special protective regulations applicable for novice drivers are lifted. A second traffic perception test must be taken 24 months later (see Chapter 3.3.1) and leads to the granting of a driving licence no longer subject to protective regulations. The hazard perception tests are intended to assess whether the novice driver is able to recognise potentially hazardous situations and react appropriately. Three separate content-related demands are distinguished: (1) Observance of the necessary safe distance to other vehicles, (2) selection of appropriate safe gaps when negotiating junctions or changing lanes, and (3) the identification of hazards in front of, behind and to the side of the driver's own vehicle. The traffic and hazard situations presented in the real-life film clips are based on the five most common types of accident involving novice drivers.

The first traffic perception test (“Hazard Perception Test”) comprises 15 questions with 30-second real-life videos, in which the candidate must touch the screen as soon as he deems it safe to perform a certain action. Before each film sequence, an instruction appears on the screen to briefly describe the subsequent traffic situation (e.g. “You are travelling along a two-way road in a 60 km/h speed zone and wish to keep driving straight ahead”), together with specification of the subsequently required behaviour (e.g. “Touch the screen when you would slow down”). Each question involves one single action. Possible actions are “Slow down”, “Overtake” or “Turning/crossing at a junction”. The candidate is also able to see the speed of his own vehicle and the activation of the vehicle's turn indicators during the film clip. The actual test is preceded by two practice questions to enable the candidate to become familiar with the test procedure. At the start of each film clip, a still image is displayed for a few seconds. Once all 15 questions have been answered, a message appears on the screen to tell the candidate whether the test was passed. If the test is passed, the candidate also receives feedback on areas in which existing driving competence should nevertheless be improved; if the test is failed, the feedback points to the areas in which further practice is necessary before attempting the test again. The pass

rate in the first traffic perception test lies at around 85 per cent.

The second traffic perception test is similarly a touchscreen-based test in which the candidate must indicate when it is safe to perform a specified action (e.g. turning at a junction). Unlike the first traffic perception test (“Hazard Perception Test”), the film clip does not necessarily contain only one instance of the required action; there may be several occasions on which the given action can be performed. Ten film clips are presented in total, each of which is also longer than those in the first traffic perception test. This second traffic perception test is a component of the so-called “Driver Qualification Test”, which begins with a traditional knowledge test comprising 15 multiple-choice questions (see Chapter 3.3.2). The pass rate in the “Driver Qualification Test” is around 67 per cent.

Australia/Victoria (GDL):

In the Australian state of Victoria, novice drivers are required to pass a traffic perception test during the supervised learning phase, before being allowed to attempt the on-road practical test. The candidate is shown a total of 28 video sequences of traffic situations from the driver perspective. Before each video sequence, the required driving action is specified (slow down, overtake, turn or move off). The candidate is asked to decide when this required action can be performed safely during the given driving scenario. Each video sequence begins with a verbal description of the coming situation (e.g. “You are driving straight ahead”), followed by a still opening image of the traffic situation from the driver perspective, in which the current speed of the vehicle is shown on the speedometer. During the test video, the novice driver must “perform” the specified action by clicking the mouse as soon as a suitably safe moment arises.

To summarise, it can be concluded that the traffic perception test is not a widespread form of testing in the total of 44 countries analysed for the project. Where it exists as an independent element of novice driver preparation, it is realised alongside the traditional knowledge test and driving test. It can thus be seen to expand the spectrum of test methods used in the systems concerned and represents an additional possibility to achieve the desired selection and control functions. With regard to the positioning of traffic perception tests within the process of novice driver preparation, the available information shows that the traffic perception test is usually only taken after a longer phase of driving practice; in some GDL countries, it is even left until after the commencement of solo driving.

The five examples presented here show that the traffic perception tests implemented in the individual countries differ significantly in terms of their methodical design. These differences refer in particular to the chosen instruction formats (e.g. video sequences, virtual traffic scenarios) and the required response (e.g. mouse click in response to hazard cues, selection of an action decision). This also means that different demands are placed on the driving licence applicant. In all cases, however, these demands go far beyond those of a traditional knowledge test which addresses declarative (factual) knowledge: Traffic perception tests assess additionally implicit (action) knowledge relating to the required driving behaviour in near-realistic traffic situations, in other words the ability to identify safety-relevant hazard cues, to interpret traffic situations (e.g. targeted information searching within limited time) or to clarify, weigh up and select an appropriate action. This serves to close a gap which otherwise exists in the testing of different components of driving competence. The methodical benefits of traffic perception tests as a means to assess situation awareness, and in particular hazard recognition and avoidance, seem evident; this point will be discussed further in Chapter 4.

3.3.4 Learner assessments

Generally speaking, learner assessments serve to verify and provide feedback on the learning status attained to date (see Chapter 2.3.2). In contrast to the informal assessments immanent to various forms of teaching, for example the querying of newly acquired traffic-related knowledge during theory classes or driving exercises with a subsequent review of performance in the course of practical driving instruction, the formal learner assessments which are prescribed in a number of countries are more resemblant of actual driving licence tests and place their function as a form of testing in the foreground. The demands to be met and the feedback provided to the novice driver by way of such learner assessments relate to the achievement of relatively complex learning objectives. In similar manner to other forms of testing, the successful completion of a formal learner assessment may also be integrated into the system of novice driver preparation as a prerequisite for progression to a new stage of the learning process or for the granting of additional driving licence rights. This chapter is intended to introduce different methodical forms of learner assessment which display a distinctly test-like character and are anchored in

the system of novice driver preparation as binding forms of testing.

In those countries in which formal driving school training is mandatory, preparation for the subsequent tests usually includes an assessment of whether the novice driver has reached the level of competence necessary to pass the test. In Germany, for example, the Learner Driver Training Ordinance (§ 6 (1) FahrschAusbO) stipulates that the driving instructor must not end theoretical and/or practical instruction until the driving licence applicant has completed the legally prescribed scope of classes or practical driving sessions, and the driving instructor is convinced that the training objectives have been achieved. Despite this binding requirement to perform a learner assessment, however, no stipulations are made as to a particular method of learner assessment or to the desired level of learning achievement.

In some countries, it is necessary to complete an internal "preliminary test" in the driving school, as a form of learner assessment, before registering to take either the knowledge test or the driving test. This demonstration of a certain level of driving competence thus serves as a prerequisite for admission to the actual test. At the end of driving school training in Estonia, for example, a knowledge test and driving test are initially taken in the driving school itself; only then can the applicant proceed to the official knowledge and driving tests set by the test organisation ("Estonian Road Administration"). In Latvia, too, internal tests are conducted in the driving school. The number of such tests is left to the discretion of the driving school; as a rule, novice drivers complete three internal tests.

In Poland, the internal preliminary tests in the driving school comprise a theoretical section and a practical section, each of which can be taken once the prescribed minimum number of hours of driving school training has been completed. The internal tests are conducted by a supervisor or driving instructor nominated by the head of the driving school. The test contents, the numbers and types of test items, the method of assessment and the test duration all correspond to the specifications for the later state-organised tests. Successful completion of the theoretical section of the internal test is a prerequisite for eligibility to attempt the practical section. The internal practical test simulates all the demands and conditions of the regular driving test, except that the test simulation is not terminated prematurely, irrespective of the number of mistakes made by the novice driver. The driving instructor responsible for conducting the test draws

up a report on the novice driver's test performance, including a list of the mistakes made. This test report is identical to the report used to document the later driving test. The report is handed over to the novice driver at the end of the internal assessment and the recorded mistakes are discussed accordingly. If the internal driving test is deemed to have been failed, an agreement is sought between the driving instructor and the novice driver on additional instruction to overcome the remaining competence deficits.

The mandatory theory classes in Slovenia also end with a mandatory internal theory test in the driving school. As in the later regular knowledge test, at least 90 per cent of the test items must be answered correctly to pass this test. A mandatory internal driving test must also be completed at the end of practical driving instruction. The novice driver is only permitted to take the actual driving test if this internal test is passed; if the test is not passed, further driving lessons must be taken.

In Hungary, novice drivers must complete at least 29 units of practical driving instruction in a driving school in order to be eligible to take the driving test. The first nine units of this mandatory training with a professional driving instructor are completed on a practice ground, where the novice driver learns to perform basic driving manoeuvres. Before moving on to driving in real traffic, a learner assessment must be "passed" in respect of these basic driving manoeuvres.

In the Netherlands, driving licence applicants are able to take a "practice test", the so-called "Learner Interim Test" ("Tussentijdse toets"), which is conducted on the basis of the same test demands as the later regular driving test. According to the recommendations of the Dutch test organisation CBR ("Centraal Bureau Rijvaardigheidsbewijzen"), this learner assessment should be planned after the novice driver has completed approximately two-thirds of his practical driving instruction. It is intended to help both the driving instructor and the novice driver himself to identify the areas in which further learning and practice are necessary. One special feature of the Dutch system is the organisational correspondence between the practice test and the later driving test: The practice test is not conducted by the driving instructor, but by an examiner from the test organisation CBR, and is furthermore subject to the same test standards (test content, test duration, observation categories, assessment and decision criteria) as the regular driving test. Participation is thus for the novice driver an opportunity to become acquainted with the test demands and situation, and in this way to reduce

possible test anxieties. The novice driver can also ask for the same examiner to be appointed for the final driving test. A further incentive for participation is the provision for demonstration of the basic driving manoeuvres to be waived during the regular driving test if they are performed successfully in the context of a practice test. Participation in the practice test is voluntary, and the timing of participation is agreed individually between the driving instructor and the novice driver; it is a prerequisite, however, that the knowledge test has already been passed. Around 40 per cent of the driving licence applicants in the Netherlands attend such a practice test before taking the regular driving test.

In Iceland, a learner assessment is prescribed for all novice drivers, but is not conducted until the novice driver has already completed a certain amount of solo driving after passing the knowledge test and driving test. Every novice driver who is in possession of a probationary driving licence must attend an "evaluation lesson" with a correspondingly qualified driving instructor in order to obtain a driving licence which is no longer subject to protective regulations. The objective is to determine whether the novice driver's self-assessment with regard to safe driving behaviour coincides with his actual driving competence. To this end, an approximately 30-minute drive is conducted in real traffic, followed by an evaluation meeting between the novice driver and driving instructor. In the course of this meeting, the self-assessment given by the novice driver before the evaluation drive is compared with the driving instructor's subsequent observations, so as to give the novice driver a realistic and balanced impression of his true driving competence. The evaluation lesson cannot be attended until at least 12 months after the commencement of solo driving, and is furthermore dependent on the novice driver not having committed traffic offences of any kind during the previous 12 months.

The binding training curriculum in Norway requires novice drivers to participate in two learner assessments in the form of "evaluation and guidance lessons" with a driving instructor. Each of these assessments comprises a 45-minute drive in real traffic and a subsequent discussion. They serve both the driving instructor and the novice driver as conclusive means to assess achievement of the learning objectives anchored in stages 2 and 3 of the curriculum (see Chapter 3.2.5). The aim of the discussions is to promote self-reflection on the part of the novice driver and to develop his ability to recognise individual strengths and weaknesses with regard to driving competence. The driving instructor and novice driver use the learner as-

essment at the end of stage 2 of the training curriculum to decide together whether the novice driver possesses the skills necessary to handle a vehicle in a low-traffic environment. Such fundamental driving skills are considered a prerequisite for the proper learning of cooperation with other road users in more complex traffic situations in stage 3. The learner assessment prescribed at the end of stage 3 determines whether the novice driver is already in a position to drive a motor vehicle safely and independently in different traffic situations. Here again, a 45-minute drive in real traffic is followed by a consultation to evaluate driving performance. The aforementioned learner assessments are binding elements of the training curriculum and must be attended by all novice drivers, irrespective of whether they are learning exclusively with a professional driving instructor, or else choose to acquire additional practical driving experience under the supervision of a lay trainer.

Similar learner assessments, likewise comprising a drive in real traffic with a driving instructor and a subsequent evaluation meeting, are also to be found in Austria and France in connection with option of accompanied driving (see Chapter 3.2.7), but are there only aimed at those novice drivers who have chosen the corresponding training model (see Chapter 3.2.1).

To summarise, it can be determined that formal learner assessments with a certain test-like character and a clear control function within the system of novice driver preparation are not (yet) particularly widespread at international level. They are found exclusively in countries in which formal driving school training is either prescribed or usual. Learner assessments occur essentially in one of two methodical forms: As "practice tests" or simulations of the regular driving licence tests, or as "evaluation driving lessons".

"Practice tests" are usually positioned at the end of a particular phase of driving school training and serve as preparation for the regular driving licence tests. In individual countries, they are even legally stipulated prerequisites for admission to the regular tests. Practice tests are generally conducted by driving instructors; in certain cases (e.g. in the Netherlands), however, they are also conducted by driving test examiners from the test organisation.

"Evaluation driving lessons", by contrast, are not simulations of a regular form of testing, but rather a supplementary, independent form of testing in the overall system of novice driver preparation, alongside the traditional knowledge test and driving test. They are organised after a phase of basic practical

driving instruction and – within the framework of accompanied driving or solo driving under protective regulations – are an additional possibility to steer and promote advanced driving competence acquisition. This effect can be strengthened if the evaluation lessons are legally prescribed and furthermore associated with the granting of extended driving licence rights to novice drivers.

3.3.5 Driving test

The intention of the “Driving test” (see Chapter 2.3.2) is to require the driving licence applicant to demonstrate a certain level of driving competence by operating and handling a vehicle in real traffic; as a form of testing, it is thus realised in the sense of a “work sample”. The test demands are specified by way of demand standards and may possess a more or less binding and structured character in a particular case. As a rule, such standards refer to classes of traffic situations (e.g. partially standardised driving tasks and basic driving manoeuvres) and/or to desired driving behaviour patterns (e.g. with regard to vehicle operation, traffic observation, speed regulation, vehicle positioning, communication and environmentally aware driving). The mastering of driving tasks and fulfilment of the driving behaviour demands are assessed and evaluated by a professional driving test examiner by way of systematic behaviour observation on the basis of defined observation and assessment criteria – assuming implementation of a test procedure founded on test psychology principles. The decision on whether the test has been passed is reached by the driving test examiner within the framework of a more or less criterion-referenced assessment process and by applying a test strategy which is more or less adaptive with regard to the situation-specific test conditions and the corresponding behaviour displayed by the candidate (STURZBECHER, BÖNNINGER & RÜDEL, 2010).

The aforementioned methodical demands can be met in various ways. The following sections, therefore, analyse the driving tests realised in the individual countries and groups of countries, in order to show

- under which framework conditions (test participants, test duration, test locations, etc.) the driving test takes place,
- how the driving test is designed with regard to its test contents,
- which methodical standards exist to define the processes by which the driving test examiner observes, assesses and reaches a

decision on the test performance displayed by the candidate,

- which feedback candidates receive on their test performance,
- how high is the pass rate for the driving test, and last but not least
- where the driving test is positioned in the overall process of driving competence acquisition and in the national systems of novice driver preparation.

The later aspect – the time at which the driving test is taken during the process of learning to drive – plays a particularly significant role in determining how and how effectively the driving test is able to fulfil its control function within the framework of novice driver preparation: It is only able to promote the acquisition of expertise if it is preceded by a substantial period of driving experience.

Framework conditions for test realisation

The essential task for the driving examiner is to reach a test decision through competent assessment of the behaviour displayed by the novice driver. The framework conditions for the correspondingly necessary behaviour observations differ between the individual countries with regard to both the situation in the test vehicle and the environment in which the test is conducted. These conditions can be aptly described by considering the persons present in the test vehicle, the seat taken in the vehicle by the driving test examiner, the test duration and the locations at which the driving test is realised.

Test participants:

The first section of Table 22 shows that, in addition to the candidate and the driving test examiner, the driving instructor may also be present in the test vehicle during the driving test. Among the major West European countries, it is mandatory for the driving instructor to be present in Germany, France and Spain; in Great Britain, on the other hand, the presence of a driving instructor is optional. In the neighbouring countries around Germany, the driving instructor must be present during the driving test in Belgium, the Czech Republic, Luxembourg and Austria, whereas this is for the most part optional in the reform-oriented countries. None of the aforementioned groups of countries actually forbid the presence of a driving instructor, but this is relatively often the case in the group of GDL countries. Viewed overall, it can be said that the driving instructor participates in the driving test – whether optionally or as a mandatory requirement – in the overwhelming majority of countries, while only a few countries forbid such participation.

Country	Group	Driving instructor present?			Examiner position		Test duration		Test locations		
		Not permitted	Mandatory	Optional	Passenger seat	Rear seat	Overall (minutes)	Test drive (minutes)	Standard routes	Flexible routes	Practice ground
D	WEU	-	X	-	-	X	45	25	-	X	-
E	WEU	-	X	-	-	X	25	20	-	X	-
GB	WEU	-	-	X	X	-	50	38-40	X	-	-
I	WEU						30	25			
F	WEU/NBR	-	X	-	X	-	35	25	-	X	-
B	NBR	-	X	-	-	X	40	25	X	-	-
CH	NBR	-	-	X	X	-	60	50	X	-	X
CZ	NBR	-	X	-	-	X	30	30	-	X	X
DK	NBR	-	-	X	X	-	45	25	-	X	-
L	NBR	-	X	-	-	X	40	30	-	X	X
PL	NBR	-	-	X	X	-		40	-	X	X
A	NBR/REF	-	X	-	-	X	40	25	-	X	X
NL	NBR/REF	-	-	X	X	-	55	35	-	X	-
FIN	REF	-	-	X	X	-	45	30	-	X	-
N	REF	-	-	X	X	-	65-75	60	X	-	-
S	REF	-	-	X	X	-	45	25	-	X	-
BG	-	-	X	-	X	-		25			-
CY	-						35				
EST	-	-	-	X	X	(X) ¹	60	45	-	X	-
GR	-	-	X	-	-	X	35	25	-	X	-
H	-	-	X	-	-	X	70	40	X	-	X
HR	-	-	X	-	-	X	45	30	-	X	X
IL	-	-	-	X	X	-	30		-	X	
IRL	-	X	-	-	X	-	50	30	X	-	-
IS	-	X	-	-	X	-	45	35	X	-	-
LT	-	X	-	-	X	-	-	25	X	-	X
LV	-	X	-	-	X	-	45	25	-	X	X
M	-	-	-	X	X	-	40	25			-
P	-	-	X	-	X	-	30	20	X	-	-
RO	-	X	-	-	X	-	25	25	X	-	-
RUS	-			X	-	X	40	20	X	-	X
SK	-	-	X	-	-	X	20	-	-	X	-
SLO	-	-	X	-	-	X	50	-	-	X	-
TR	-								-	-	X
AUS/NSW	GDL	X	-	-	X	-	45	-	X	-	-
AUS/QLD	GDL							35			
AUS/VIC	GDL	-	-	X	-	X	50	30	X	-	-
CDN/NS	GDL										X
CDN/ON	GDL	X	-	-	X	-	-	20 30 ²	X	-	-
CDN/QC	GDL	X	-	-	X	-	45	-	X	-	-
NZ	GDL	-	-	X	X	-	-	30 45 ³	X	X ⁴	-
USA/CA	GDL	X	-	-				20			
USA/FL	GDL										
USA/NC	GDL										

Tab. 22: Driving test – Test participants, test duration and test locations (“X” = applicable, “-” = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Only if a driving instructor is present; ² Novice drivers take two driving tests (see Chapter 3.3.1): A duration of 20 minutes is prescribed for the “G1 Road Test”, and 30 minutes for the “G2 Road Test”. ³ Novice drivers take two driving tests (see Chapter 3.3.1): The test drive lasts 30 minutes in the “Restricted Licence Test” and 45 minutes in the “Full Licence Test”. ⁴ The “Restricted Licence Test” is conducted on standard routes, the “Full Licence Test” on flexible routes.

Where a driving instructor is present during the driving test, there are various possibilities for the seating of the driving test examiner in the test vehicle: If the driving instructor sits in the front passenger seat, then he is able to intervene in the operation of the vehicle – as in the previous training situation – if this is necessary to avoid endangering the vehicle occupants or other road users. The driving test examiner is then relieved of this task and can focus his attention more strongly on communication of the required actions to the test candidate, and on observation, assessment and documentation of the candidate's driving behaviour. It is equally possible for the driving test examiner to take the front passenger seat during the driving test – irrespective of the possible presence of a driving instructor – and thus himself acquire responsibility for the safety of the vehicle in road traffic. This, however, naturally limits his resources for planning and structuring of the test demands and for the continuous assessment and documentation of the candidate's test performance. The different examiner positions in the test vehicle are shown in the second section of Table 22.

As can be seen from the table for the major West European countries, the driving test examiner sits in the rear seat of the vehicle in Germany and Spain, but in the front passenger seat in France and Great Britain. Among the neighbouring countries around Germany, the driving test examiners in Switzerland, Denmark and Poland similarly occupy the front passenger seat, while the driving instructor, whose presence is optional, takes a rear seat. In Belgium, the Czech Republic, Luxembourg and Austria, the driving test examiner observes the test drive from the rear seat, as the driving instructor sits in the front passenger seat. In the remaining reform-oriented countries, by contrast, the driving test examiner always occupies the front passenger seat, and the driving instructor sits in the rear of the test vehicle, insofar as he participates in the driving test. In the group of GDL countries, the driving test examiners in the Canadian provinces of Ontario and Québec and in the Australian state of New South Wales take the front passenger seat; the presence of a driving instructor is here not permitted. In the Australian state of Victoria, on the other hand, the driving test examiner always sits in the rear of the vehicle, while the driving instructor is only permitted to be present in the front passenger seat if the test vehicle is a training vehicle with dual controls.

Overall, Table 22 reveals that, in those countries in which the presence of a driving instructor is mandatory, the driving test examiner usually sits in the rear seat. In Estonia, where the participation of a

driving instructor is optional, the examiner only takes the front passenger seat if no driving instructor is in the vehicle; if a driving instructor is present, he takes the rear seat. In Hungary, the presence of a driving instructor is a mandatory requirement; here, the driving instructor sits in the front passenger seat and gives the candidate instructions on the route to be followed. The planning of the test route, however, remains the responsibility of the driving test examiner and is discussed with the driving instructor before the test starts.

In addition to the aforementioned test participants (driving instructor, driving test examiner and candidate), further persons may also be present in the test vehicle. In Germany, for example, the regulations allow a second candidate to be present in the vehicle to enable two test drives to be conducted in immediate succession. Such combinations of two driving tests, however, are subject to the consent of all those involved. Further persons may also be permitted to participate in the driving test within the framework of quality assurance measures (see Chapter 3.4.5), for example to evaluate the manner of test realisation and the behaviour of the examiner during the test. Accordingly, in practically all the analysed countries, the driving test is conducted regularly by a single driving test examiner, and a second examiner is only present, if at all, for purposes of quality assurance. In Greece, on the other hand, there are always two driving test examiners present during the test drive.

Test duration:

A driving test comprises a number of different elements. In this respect, it is generally possible to distinguish between “technical preparation of the vehicle”, “basic driving manoeuvres” and a “test drive” (see “Test contents” below). In addition, feedback on the test result and – in some countries (e.g. Great Britain, France and Malta) – verification of the candidate's adequate vision may also represent important components of the driving test. Correspondingly, significant differences in the overall duration of the driving test must be expected. For comparisons of the test demands, the duration of the test drive in real traffic is thus a more meaningful indicator than the overall test duration. Therefore, Table 22 contains not only the time specified for the whole driving test, but also the stipulated minimum duration for the actual test drive in real traffic.

It can be derived from Table 22 that the driving test lasts 45 minutes or less in the majority of the countries considered by the project. Driving tests with an overall duration of one hour or more are found

in Switzerland in the group of neighbouring countries around Germany and in Norway in the group of reform-oriented countries, as well as in Estonia and Hungary among the countries which are not assigned to a particular special group. As already mentioned, the total duration indicated in the table usually includes time allocated to further test components alongside a test drive in real traffic. In Finland, for example, the total duration of 45 minutes for the driving test (see Table 22) consists of a five-minute conversation at the start of the test, 30 minutes of actual driving, and finally 10 minutes in which the driving test examiner provides feedback to the candidate. In the Netherlands, the quoted total duration for the driving test includes around 15 minutes for an explanation of the test procedure as introduction and for concluding feedback on the result of the test.

As is furthermore to be seen from Table 22, the prescribed minimum duration for the “test drive” element is more than 25 minutes in almost all countries. In the major West European countries, the test drive is relatively long in Great Britain at around 40 minutes, but does not exceed 25 minutes in the other countries of this group; in Spain, it is even as short as 20 minutes. Particularly long test drives are found in Norway in the group of reform-oriented countries (60 minutes) and in Switzerland (around 50 minutes) and Poland (40 minutes) in the group of neighbouring countries around Germany. Among the GDL countries, the test drive lasts at least 30 minutes in the Australian state of Victoria, of which 10 minutes are conducted on quiet roads and a further 20 minutes in higher-density traffic. In Queensland, a duration of around 35 minutes is prescribed for the test drive. In New South Wales, by contrast, there are no special regulations to specify a minimum duration, but the driving test generally lasts up to 45 minutes. In the Canadian province of Ontario, where two driving tests are taken (see Chapter 3.3.1), a duration of 20 minutes is prescribed for the “G1 Road Test”, and a duration of 30 minutes for the “G2 Road Test”. Novice drivers in New Zealand are also required to pass two driving tests: The test drive in the “Restricted Licence Test” lasts 30 minutes, and that in the “Full Licence Test” 45 minutes.

Test locations:

The fulfilment of particular test demands during the course of a driving test is dependent on the extent to which corresponding road infrastructures for the realisation of certain driving tasks are to be found at the locations at which the driving test takes

place. The EU Directive on Driving Licences⁵¹ formulates criteria for test locations in respect of the European countries. The gist of these stipulations is as follows: The sections of the test serving to assess special manoeuvres (i.e. the basic driving manoeuvres) may be conducted on a special testing ground. The sections of the test serving to assess driving behaviour in road traffic should be conducted, where practicable, on roads outside built-up areas, on high-speed roads and on motorways (or similar roads), as well as on all types of roads inside built-up areas (residential areas, zones with 30 km/h and 50 km/h speed limits, urban expressways). It should be feasible for the full diversity of traffic situations and traffic problems encountered in the course of daily driving to occur also during the test drive. It is similarly desirable for the test to take place in traffic of different densities. The time spent driving on the road should be used in the best way possible to assess the driving competence of the candidate in all the different traffic environments likely to be encountered, placing special emphasis on the transitions between such environments.

To ensure the required framework conditions for realisation of the driving test, some countries have elaborated standardised test routes, along which it is reasonable to expect the test candidate to be confronted with the desired demands in real traffic. In other countries, the driving test examiner is able to choose a test route flexibly, as he sees fit to test the driving competence of an individual candidate. With regard to the testing of basic driving manoeuvres, such as parking or turning the vehicle to face the other way (see “Test contents” below), separate practice grounds are used in a number of countries. On the one hand, this permits the required driving manoeuvres to be performed under protective conditions with a minimum of other traffic; at the same time, it is possible to realise a uniform demand situation for all candidates, for example by placing cones to represent the gap to be used for the parking exercise. In those countries in which the basic driving manoeuvres are assessed exclusively in real traffic, it is still usual to conduct this element of the test in a low-traffic environment.

The last columns of Table 22 show whether practice grounds are used for the driving test, and in which countries the test drive is realised on the basis of standard or flexible routes. In the major West European countries, the driving test is realised exclusively in real traffic, i.e. practice grounds are never used for the test. In the neighbouring countries around Germany, by contrast, it is relatively common to complete the basic driving manoeuvres on a practice ground, whereas this pos-

⁵¹ DIRECTIVE 2006/126/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20th December 2006

sibility is only seldom used in both the reform-oriented countries and the GDL countries.

In connection with the use of standard routes, it is to be seen that, among the major West European countries, only Great Britain conducts driving tests on standard routes. In the neighbouring countries around Germany, this is only true for the driving test in Switzerland – leaving aside the special case in Belgium (see below); in the reform-oriented countries, it only applies in Norway. In both of these groups of countries, the test drive is thus usually conducted on flexible routes in real traffic. By contrast, standard routes are used relatively frequently in the GDL countries.

The aforementioned EU criteria for test locations represent minimum standards which are intended to guarantee comparable test demands across all European countries. Even so, these criteria are implemented in very different manners from one country to another. In Germany, for example, “Demands on the test location and its surroundings” are described in Annex 11 to the Examination Guidelines (Prüfungsrichtlinie, PrüfRiLi). These guidelines specify targets for how often the road and traffic conditions required for the testing of particular driving tasks should occur during five successive driving tests. The specifications are based essentially on surveys conducted at the beginning of the 1980s to typify the traffic conditions at all 682 test locations listed at that time for the Federal Republic of Germany, and on a written questionnaire distributed to 234 traffic experts to obtain opinions on desirable test conditions; to ensure practicability, the frequency parameters determined in this way were subsequently reduced after field tests at a sample of 35 test locations (HAMPEL & KÜPPERS, 1982). The applicable frequency targets are not understood to mean that the driving test examiner must guarantee attainment by maintaining an overview of the driving tasks actually performed by candidates in each series of five tests (STURZBECHER et al., 2010); they serve rather as orientation for sporadic investigations of the current suitability of individual test locations.

In Denmark, the driving test is conducted on flexible routes. When planning a test route, however, the driving test examiner is required to ensure that all the relevant contents of the curriculum can be assessed. It is expected that the route comprises sections within and outside built-up areas, including both rural roads and motorways. In Belgium, the test route is not prescribed as such, but must always include three previously specified locations. These locations are determined in a ballot process before the test and may be combined with each

other in a certain manner; the candidate draws one such combination at random before commencing the driving test.

In Austria, the basic driving manoeuvres are tested on a practice ground. The test locations for the subsequent test drive in real traffic are intended to include driving in a total of four different traffic environments: Traffic-calmed zones (at approx. 30 km/h), general built-up areas (at 50 km/h), roads outside built-up areas (at over 50 km/h, reference speed 80 km/h), and motorways or similar high-speed roads (at minimum 80 km/h, reference speed 100 km/h). As it is not feasible to incorporate all four environments into a driving time of 25 minutes at most test locations, it is stipulated that the route of the test drive must pass through at least three of the four designated traffic environments.

In Norway, where the driving test is conducted on standard routes, the route for each test is intended to cover a variety of roads of different widths and with different speed limits, surfaces and gradients, including also motorways. Furthermore, it should require the candidate to drive straight on and to turn right and left at junctions and crossroads (where the traffic is controlled by light signals or else a roundabout is installed). There should also be opportunities to turn the vehicle to face in the opposite direction, to change lanes, to overtake and to be overtaken by other vehicles. Between 50 and 80 per cent of the driving time should be spent outside built-up areas (on roads with a speed limit of more than 50 km/h). The standard routes in Norway are assigned to individual driving test centres. Each test centre has a pool of at least six standard routes at its disposal, at least one of which must be replaced by a new route each year. A graphics program is used to produce a series of route drawings; these drawings also contain notes to specify the points along the route at which the driving test examiner is required to give a particular instruction. One of the available standard routes is selected at random by computer immediately prior to the test.

Test contents

The contents of the driving test can be divided into three sections: “Technical preparation of the vehicle”, “Basic driving manoeuvres” and “Test drive”. Such divisions are found in practically all the countries covered in the present report. In the following, therefore, the three content sections are to be viewed more closely with regard to their implementation in the individual countries and groups of countries.

Basic driving manoeuvres:

The demonstration of certain basic driving manoeuvres (e.g. parking or turning the vehicle) is usually an independent element of the test, with the candidate's performance being assessed either separately on a practice ground or in the course of the test drive. In the EU Directive on Driving Licences, these test requirements are termed "special manoeuvres"⁵²; there, a selection of driving manoeuvres is stipulated for testing in the European countries (at least two manoeuvres from the following four, including one requiring use of the reverse gear):

- Reversing in a straight line or reversing right or left around a corner while keeping within the correct traffic lane;
- Turning the vehicle to face the opposite way, using forward and reverse gears;
- Parking the vehicle and leaving a parking space (parallel, oblique or right-angle, forwards or in reverse, on the flat, uphill or downhill);
- Braking accurately to a stop; performing an emergency stop, however, is optional.

Despite these stipulations, which are intended to promote standardisation of the relevant test demands in Europe, significant differences still exist between the European countries in respect of the basic driving manoeuvres specified for the driving test; the same applies for comparisons with and between the overseas countries. Against this background, the left-hand columns of Table 23 indicate firstly the basic driving manoeuvres which are available for use within the framework of the driving test in each of the individual countries covered by the project.

As can be seen from Table 23, "Parking" and "Turning the vehicle to face the other way" are tested in practically all countries. "Braking accurately to a stop" and "Emergency braking" are also stipulated test demands in the majority of the major West European countries and the neighbouring countries around Germany, with Belgium, Spain and the Netherlands as the sole exceptions; among the reform-oriented countries, on the other hand, "Emergency braking" is only tested in Sweden. In den GDL countries, "Braking accurately to a stop" is nowhere an element of the driving test, but "Emergency braking" is tested at least in the US states of Florida and North Carolina. "Driving off uphill" is not usually among the basic driving

manoeuvres required in the major West European countries, whereas it is a typical test demand in the other groups of countries and in the majority of individual countries overall.

In the following, it is to be explained for selected countries from the different country groups, under which basic conditions the basic driving manoeuvres listed in Table 23 are tested in each case.

In Germany (WEU), the basic driving manoeuvres are tested in real traffic, albeit on roads with a low traffic density. One of the two basic driving manoeuvres (1) Reversing around a corner to the right making use of a junction, crossroads or entrance, and (2) Reversing into a parking space (parallel to the traffic) is part of every driving test. In addition, the candidate must demonstrate one of the other three possible basic driving manoeuvres (3) Parking in a space (obliquely or at right angles to the traffic), (4) Turning the vehicle to face the opposite way, and (5) Braking with the maximum possible deceleration.

In Great Britain (WEU), the driving test examiner selects two of the three possible basic driving manoeuvres: (1) Turning in the road ("three-point turn"), (2) Reversing around a corner to the left or right, or (3) Reverse parking, either into a parking bay or parallel parking at the side of the road. The latter basic driving manoeuvre can be performed either at the beginning or at the end of the driving test; in both cases, the candidate can himself choose a suitable parking space. In addition, he may be asked to demonstrate an emergency stop, an angle start from behind a parked vehicle and normal stopping of the vehicle.

In Belgium (NBR), every driving test includes two basic driving manoeuvres in real traffic, namely (1) Turning the vehicle in a narrow road, and (2) Parking behind another vehicle. As far as turning the vehicle in a narrow road is concerned, the novice driver is able to influence the test situation, in the sense that he himself chooses a suitable location for the manoeuvre after being asked to do so by the driving test examiner.

In Switzerland (NBR), the basic driving manoeuvres are performed on a separate practice ground. The type and number of basic driving manoeuvres to be tested corresponds to the stipulations of the EU Directive on Driving Licences (see above).

⁵² The present report nevertheless uses the term "basic driving manoeuvres" throughout, as the terminology most current in Germany.

Country	Group	Basic driving manoeuvres						Test drive methods		
		Parking	Turning to face the other way	Reversing around a corner	Braking accurately to a stop	Emergency braking	Driving off uphill	Instructions given by the examiner	"Independent driving"	Oral test components
D	WEU	X	X	X	-	X	-	X	-	-
E	WEU	X	X	X	-	-	X			
GB	WEU	X	X	X	-	X	-	X	-	-
I	WEU									
F	WEU/NBR	X	X	X	X	-	-	X	X	X
B	NBR	X	X	-	-	-	-	X	-	-
CH	NBR	X	X	X	X	X	X			
CZ	NBR	X	X	X	X	-	-	X	-	-
DK	NBR	X	X	X	X	X	X	X	-	-
L	NBR	X	X	X	X	X	X	X	X	-
PL	NBR	X	X	-	X	X	X	X		
A	NBR/REF	X	X	X	-	X	X	X	X	X
NL	NBR/REF	X	X	-	-	-	X	X	X	X
FIN	REF	X	X	-	-	-	X	X	X	-
N	REF	X	X	X	-	-	-	X	X	-
S	REF	X	X	X	-	X	X	X	X	X
BG	-	X					X			
CY	-	X	X	X	-	X	-			
EST	-	X	X	X	-	-	X	X	X	-
GR	-	X	X	X	-	-	X	X	X	-
H	-	X	X	X	X	X	X	X	-	-
HR	-	X	X	X	-	X		X	X	X
IL	-									
IRL	-	X	X	X	X	-	X			
IS	-	X	-	-	-	X	X	X	-	-
LT	-	X	X	X	X	-	X	X	-	-
LV	-	X	X	-	X	-	X	X	-	-
M	-	X	X	X	-	X	-			
P	-	X	X	-	-	-	X			
RO	-	X	X	X	X	X	X	X	-	-
RUS	-		X	X		X	-			
SK	-	X	X	-	X	-	X	X	X	-
SLO	-	X	X	X	X	X	X	X	X	-
TR	-	X	X	-	-	-	-			
AUS/NSW	GDL	X	X	-	-	-	X	X	-	-
AUS/QLD	GDL	X	X	X	-	-	X	X	-	-
AUS/VIC	GDL	X	X	-	-	-	-	X	-	-
CDN/NS	GDL	X	X				X			
CDN/ON	GDL	X	X	-	-	-	X	X	-	-
CDN/QC	GDL							X	X	-
NZ	GDL	X	X	X	-	-	X	X		X ¹
USA/CA	GDL									
USA/FL	GDL	X	X		-	X	X			
USA/NC	GDL	X	X	X	-	X	-			

Tab. 23: Basic driving manoeuvres and methods applied in the test drive ("X" = applicable, "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ "Commentary driving" represents a test demand in the "Full Licence Test" (see Chapter 3.3.1).

In Austria (NBR/REF), too, a practice ground is used to test basic driving manoeuvres. The novice driver must complete a set course, which permits assessment not only of the aforementioned basic driving manoeuvres (see Table 23), but also of “Driving in a slalom” and “Reverse parking into a garage”. “Driving off uphill”, on the other hand, is merely a possible element of the test drive. The driving test examiner does not sit in the vehicle during testing of the basic driving manoeuvres. Despite the fact that the basic driving manoeuvres are tested on a practice ground, the candidate must still perform each manoeuvre as if he is on a public road, i.e. he must look in the appropriate directions to check for other road users and must use the vehicle turn indicators as required. The candidate is permitted three attempts for each basic driving manoeuvre.

In the Netherlands (NBR/REF), possible basic driving manoeuvres are (1) Turning the vehicle to face the other way, (2) Parking, and (3) Braking to a stop. The driving test examiner chooses two of these three basic driving manoeuvres. With regard to turning the vehicle to face the other way, for example, the driving test examiner at some point asks the candidate to continue his drive in the opposite direction, whereafter the latter can himself decide when to perform the required manoeuvre. This approach of autonomous performance (“independent driving”) is also applied for the other two basic driving manoeuvres. In addition, driving off uphill may also be tested.

In Finland (REF), the driving test examiner selects at least two of the following four basic driving manoeuvres, one of which must involve use of the reverse gear: (1) Driving off uphill with or without use of the parking brake, (2) Reversing in a straight line, (3) Parallel parking on the level, uphill or downhill, and (4) Turning the vehicle to face the opposite way, using forward and reverse gears.

Even though the term “basic driving manoeuvres” is not used explicitly in the Australian state of Victoria (GDL), where all situative test demands are instead grouped under the term “driving tasks” (see “Test drive” below), the basic driving manoeuvres assessed in the European countries are nevertheless to be found in similar form. This similarity refers firstly to the concrete test contents (e.g. “Reverse parking” or “Three-point turn”), and secondly to the fact that these manoeuvres are likewise tested in a low-traffic environment subject to reduced risk.

In Ontario (GDL), the first driving test in a low-traffic environment (“G1 Road Test”) includes demonstration of the following manoeuvres, each

on two occasions: Three-point turn, parallel parking, and stopping, parking and driving off uphill or downhill. In the second driving test (“G2 Road Test”), the aforementioned basic driving manoeuvres must only be performed once, but that on roads with denser traffic. In this context, the driving test examiner observes especially how the manoeuvre is coordinated with the prevailing traffic, in other words how the candidate drives off, performs the basic driving manoeuvre and then continues his drive. A particular focus is placed on the candidate’s observation behaviour.

Test drive:

During the test drive, driving licence applicants must show that they are capable of operating a vehicle safely under different traffic conditions. To this end, the EU Directive on Driving Licences stipulates that the candidate must be able to perform the following actions “in normal traffic situations, in complete safety and taking all necessary precautions”:

- Driving away after parking, after a stop in traffic or exiting a driveway
- Driving on straight roads and passing oncoming vehicles, also in confined spaces
- Driving round bends
- Approaching and crossing intersections and junctions
- Changing direction: Left and right turns, changing lanes
- Entering/exiting motorways or similar roads (where available): Joining from the acceleration lane, leaving on the deceleration lane
- Overtaking/passing: Overtaking other traffic (if possible), driving alongside obstacles, e.g. parked cars, being overtaken by other traffic (if appropriate)
- Special road features (if available): Roundabouts, railway level crossings, tram/bus stops, pedestrian crossings, driving uphill/downhill on long slopes
- Taking the necessary precautions when alighting from the vehicle.

The driving test examiner structures a concrete driving test on the basis of his knowledge of the local road and traffic conditions, taking into account a stipulated catalogue of driving tasks, where appropriate, and in this way plans the demand and observation situations in which he expects to be able to assess the candidate’s driving behaviour and reach a final test decision. Instructions relating to the required driving tasks are then given to the candidate during the test drive in real traffic. The form in which these instructions are given may already place different demands on the

test candidate: Traditionally, the driving tasks are communicated one by one as individual verbal instructions, which results in a certain disjointedness and may place action pressures on the candidate. Where the test method of “independent driving” is applied, by contrast, the driving instructions are formulated not as a sequence of short disjointed steps, but rather as a general destination to which the candidate must drive by his own route – possibly even with the aid of a navigation system. In this way, the driving test becomes more realistic and gains in validity; after all, no-one dictates the steps of a particular route to the driver when he is later driving independently in daily road traffic, there will often be several route options available, and any navigation errors can be corrected without stress. Furthermore, the use of navigation systems is in the meantime commonplace in modern road traffic. One methodical disadvantage, however, is that the specifically necessary driving tasks are placed increasingly at the discretion of the candidate, for which reason “independent driving” cannot remain the sole test method in the context of a driving test: The driving test examiner must retain the opportunity, within the framework of his chosen test strategy, to demand that certain concrete driving tasks be performed.

In a few countries, the driving test includes also oral test components, i.e. the driving test examiner is not forced to base his test assessment exclusively on observations, but can instead seek to obtain a more precise impression of the candidate's driving competence by way of questions and verbal exchanges. In Table 23 (see above), information received with regard to the use of “independent driving” during the test drive and possible oral test components is summarised in the right-hand columns.

As can be seen from the table, driving according to instructions given by the driving test examiner is supplemented by “independent driving” to a specified overall destination in many countries. In Austria, for example, this is possible if the candidate declares that he possesses corresponding local knowledge. Where a test route is well signed, the candidate may also be asked to drive to a signposted destination (e.g. “Please drive to X-Town” or “Please drive to the A2 motorway”). In the Netherlands, the candidate must drive independently of instructions given by the driving test examiner for a period of 15 to 20 minutes. This test component involves either driving to a generally known local destination, or following a set of three to five route instructions given by the examiner, or use of a

navigation system to drive to a specified destination.

Table 23 also indicates those countries in which the driving test includes oral test components referring to traffic situations encountered during the test drive (“situational questions”). Test candidates in the Netherlands, for example, can be asked to park the vehicle and must then explain their perceptions, decisions and actions relating to a previously experienced traffic situation to the driving test examiner. In Austria, too, the driving test examiner is able to interrupt the drive and immediately discuss any experienced situations pertaining to “hazard perception” should any doubts arise as to the candidate's adequate traffic awareness – here understood essentially as inadequate situational awareness or understanding for the traffic situation – and can in this way analyse the background to the displayed behaviour. If the candidate is not able to dispel the examiner's doubt in this conversation, the situation is recorded as a driving error.

Technical preparation of the vehicle:

The test element “Technical preparation of the vehicle” requires the driving licence applicant to demonstrate knowledge of certain technical aspects of a motor vehicle, acquaintance with the various operating and control features, and the ability to maintain a vehicle and rectify possible defects. In the EU Directive on Driving Licences, it is stipulated under the heading “Preparation and technical check of the vehicle” that the candidate must properly satisfy the following requirements:

- Adjusting the seat as necessary to obtain a correct seated position
- Adjusting rear-view mirrors, seat belts and head restraints, if available
- Checking that the doors are closed, and
- Performing a random check on the condition of the tyres, steering, brakes, fluids (e.g. engine oil, coolant, washer fluid), lights, reflectors, direction indicators and audible warning device.

Even though technical preparation of the vehicle is an element of the driving test in all the countries and groups of countries analysed by the present report, there are nevertheless differences in the concrete demands and in the manner in which testing is realised.

In Great Britain (WEU), a test always includes two test items (“Show me” and “Tell me” questions) relating to technical preparation of the vehicle; failure to master either or both of these test items is treated as a driving error (see “Test assessment”

below). One test item involves practical demonstration of a certain action as proof of corresponding knowledge on technical preparations (“Show me” question); the second test item requires a verbal explanation (“Tell me” question). The driving test examiner selects the two test items for an individual candidate from a catalogue of possible test items. The practical test item could refer, for example, to checking the proper functioning of the vehicle's turn indicators or the front and rear lights; possible subjects for the oral test item include checking of the correct tyre tread or proper functioning of the brake lights. In France (WEU), one question must be answered on technical preparation inside the vehicle, and one question outside the vehicle. In Belgium (NBR), technical preparation of the vehicle comprises firstly test contents which are demanded in every test (e.g. seat adjustment, correct use of seat belts, mirror adjustment), and secondly contents which are included randomly in the items to be demonstrated by the novice driver (e.g. checking tyre pressure, checking tyre tread, checking the level of engine oil, brake fluid or coolant). The random check to be demonstrated by the individual candidate is determined by drawing lots. In Ontario (GDL), the novice driver is expected to be able to localise certain vehicle controls and features (e.g. windscreen wipers, signal horn, lights, ignition, sun visors) and explain their function and adjustment. In New South Wales (GDL), the driving test examiner performs a vehicle check before commencing the test drive, in order to check the roadworthiness condition of the test vehicle brought to the test by the candidate himself. The driving test is treated as failed if the vehicle does not satisfy the demands relating to roadworthiness. Before and during the test drive, the driving test examiner observes whether the candidate has adjusted his seat position correctly and wears a seat belt. It is expected that the candidate is able to use all the controls of the vehicle, and that he is in a position to do so without distraction from his general operation of the vehicle.

In Victoria (GDL), the driving licence candidate must perform a pre-drive safety check at the start of the test, following instructions given by the driving test examiner. He must first identify and demonstrate use of a series of vehicle control features (turn indicators, brake lights, horn, full-beam and dipped headlights, hazard warning lights, windscreen wipers/washers). Next, he must show the hand brake and the front and rear screen demister (if present), before finally starting the engine. If any of the aforementioned control features is not in proper working order, or if the candidate does not

successfully perform the pre-drive check, the driving test is not continued; if the candidate is only unable to show the demister functions, however, this check is performed by the examiner and the test is continued nevertheless. If use of any of the controls becomes necessary in the course of the test drive, but the novice driver is not able to do so, the driving test is terminated. Beyond these conditions, on the other hand, the technical preparation of the vehicle is not taken into account in the overall assessment of the driving test (see “Test assessment” below).

Test assessment

In the following, the situation in a number of countries from the different groups is to be viewed in more detail to determine the categories by which the driving test examiner observes the candidate's driving behaviour, and the criteria which are applied to assess the test performance displayed. In this context, reference is made above all to the design of the test reports used to document the driving test, as such reports generally define the framework for observation categories and for the assessment and decision criteria to be applied by the driving test examiner.

In Germany (WEU), it is firstly a general requirement that the examiner should not interpret rules pettily when evaluating test performance, and that positive aspects of performance must also be honoured. The test is to be deemed failed and is terminated prematurely, if the candidate displays serious errors in behaviour (e.g. gross disregard of the rules of priority and right-of-way, or overtaking where this is prohibited), especially where such errors involve the endangering of other road users. Errors to be considered serious errors are listed in a catalogue of assessment criteria for the driving test examiner. Furthermore, errors in behaviour which are in themselves not generally serious enough to warrant failing of the driving test may nevertheless result in failure if they are observed repeatedly. The serious driving errors committed by the candidate must be recorded in a test report by the driving test examiner.

In Great Britain (WEU), three categories of driving errors are distinguished: “Dangerous faults” (i.e. driving errors resulting in the actual endangering of others), “serious faults” (i.e. errors which could potentially endanger others) and “driving faults” (i.e. mistakes in vehicle handling or incorrect reactions in non-dangerous situations). The test is deemed failed if the candidate commits one “dangerous fault”, one “serious fault” or more than 15 “driving faults”.

In Belgium (NBR), the test report makes reference to a total of nine observation categories, for example “Correct use of the road” (e.g. driving too far to the right), “Overtaking” (e.g. sufficient clearance to the side), “Right of way” (e.g. failure to cede right of way) and “Behaviour towards other road users” (e.g. pedestrians and cyclists). In addition, there is an overarching observation category for assessment of a “Defensive style of driving”. Test performance is assessed by totally the driving errors observed, each of which can be assigned to one of the four error categories “Inadequate”, “Unsatisfactory”, “Subject to reservations” and “Satisfactory”.

In Austria (NBR/REF), the driving test examiner records any errors observed during the test drive in the corresponding fields of the test report and classifies these errors as “minor”, “medium” or “serious”. A candidate fails the driving test if he displays behaviour which could potentially lead to the endangering of other road users (“abstract endangering”) on more than one occasion, or if he repeatedly has problems with either vehicle operation or vehicle control. Multiple instances of significant annoyance for other road users (e.g. repeated voluntary surrendering of the candidate's right of way) is treated as a serious error. More than two serious errors or more than five medium errors lead to a negative test result. After the test drive, as the on-road test component in the narrower sense, a conversation is held in which the candidate has opportunity to himself name and explain any driving errors made; these explanations can be taken into account in the test result. After the test, the driving test examiner must submit a professionally founded expertise, in which all the individual aspects of test performance relating to the technical preparation of the vehicle, the basic driving manoeuvres and driving behaviour during the test drive are documented and assessed.

In Finland (REF), the test report specifies six categories, on the basis of which the candidate's driving behaviour can be observed and assessed: (1) “Observation”, (2) “Judgement”, (3) “Speed adaptation”, (4) “Interaction”, (5) “Correct vehicle positioning” and (6) “Compliance with traffic rules”. The driving behaviour displayed by the candidate is assessed by way of the categories “Good performance”, “Error” and “Conflict”.

In the Australian state of Victoria (GDL), the driving test is divided into two sections, namely an approximately 10-minute drive in a low-traffic environment (part 1) and a 20-minute drive in busier

traffic (part 2). For test assessment, a distinction is made between “Critical errors” and “Immediate termination”. A “critical error” is recorded if the candidate commits a serious error or traffic offence, but the criteria for immediate termination of the test are nevertheless not fulfilled (e.g. the candidate neglects to use the flashing indicators when changing lanes, but no other vehicle was present at the time and thus a dangerous situation did not arise). The driving test is deemed failed, and is terminated prematurely, if the more than one “critical error” is recorded during part 1, or more than two “critical errors” during part 2. The assessment category “Immediate termination” relates to driving behaviour which forces other road users to act explicitly to avoid a collision, which places other road users or objects in the traffic environment at immediate risk, which requires intervention on the part of the driving test examiner, or which unnecessarily increases the risk of an accident. As the category title already indicates, such behaviour results in immediate termination and the test is failed.

Feedback on test result

As a rule, the observation and assessment of driving behaviour during the driving test is recorded in a test report. This report may also be handed over to the candidate at the end of the test, as written feedback on the driving errors observed and on the areas of driving competence in which competence deficits remain. Furthermore, a professionally founded test report can serve as a basis for a verbal review of the candidate's test performance, and thus of the strengths and weaknesses revealed by the driving test. Table 24 provides an overview of the different forms of result feedback which are given to test candidates in the 44 countries considered by the present project.

The table shows that, in the group of major West European countries, Germany is the only country in which the candidate only receives a test report if the test is failed. In all the other countries in this group, a report is presented irrespectively of whether the test is passed or failed; the same applies generally in the GDL countries. The majority of both the neighbouring countries around Germany and the reform-oriented countries also present a test report to both successful and unsuccessful candidates; exceptions are Poland, Luxembourg and the Czech Republic. In the Czech Republic, moreover, the candidate never receives the test report.

Country	Group	Test report for candidate			Verbal feedback				Pass rate
		No	Only if failed	Always	No	Only if failed	Always	Duration (minutes)	
D	WEU	-	X	-	-	-	X		~ 72 %
E	WEU	-	-	X	-	-	-	-	~ 51 %
GB	WEU	-	-	X	-	-	X		~ 46 %
I	WEU								
F	WEU/NBR	-	-	X	X	-	-	-	~ 56 %
B	NBR	-	-	X	-	-	X	~ 5	~ 60 %
CH	NBR	-	-	X ¹	-	-	X		~ 65 %
CZ	NBR	X	-	-	-	X	-		~ 60-70 %
DK	NBR	-	-	X					~ 60 %
L	NBR	-	X	-	-	X	-	< 10	~ 55 %
PL	NBR	-	X	-	X	-	-	-	~ 35 %
A	NBR/REF	-	-	X	-	-	X		~ 94 %
NL	NBR/REF	-	-	X	-	-	X		~ 48 %
FIN	REF	-	-	X	-	-	X	~ 10	~ 75 %
N	REF	-	-	X	-	-	X	~ 5-10	~ 80 %
S	REF	-	-	X	-	-	X	~ 5	~ 61 %
BG	-								~ 47 %
CY	-								
EST	-	-	X	-	-	-	X	~ 5	~ 57 %
GR	-				X	-	-	-	~ 50 %
H	-	-	-	X	-	-	X	~ 5	~ 54 %
HR	-	-	-	X	-	-	X	~ 3-5	~ 53 %
IL	-								
IRL	-	-	-	X	X	-	-	-	~ 57 %
IS	-	X	-	-	-	-	X	~ 5	~ 90 %
LT	-	-	-	X	-	-	X	~ 5-10	~ 42 %
LV	-	-	-	X	-	-	X	~ 5	~ 50 %
M	-	-	-	X	-	-	X		~ 50 %
P	-	-	-	X	-	-	X		~ 75 %
RO	-	X	-	-	X	-	-	-	~ 70 %
RUS	-	-	-	X	-	-	-	-	
SK	-	X	-	-					~ 80 %
SLO	-	-	-	X	-	-	X	~ 5	~ 53 %
TR	-								~ 76 %
AUS/NSW	GDL	-	-	X	-	-	X		~ 55 %
AUS/QLD	GDL	-	-	X	-	-	X		
AUS/VIC	GDL	-	-	X	-	-	X		~ 60-70 %
CDN/NS	GDL								
CDN/ON	GDL	-	-	X	-	-	X		~64% ~68% ²
CDN/QC	GDL				X	-	-	-	
NZ	GDL				-	-	X		
USA/CA	GDL								
USA/FL	GDL								
USA/NC	GDL								

Tab. 24: Feedback on test performance and pass rates in the driving test ("X" = applicable, "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Normally always, but in some cantons only if the test is failed. ² The different pass rates refer to the "G1 Road Test" and "G2 Road Test", respectively.

It can also be derived from Table 24 that, in most countries, the driving test is followed by a brief consultation, which serves to provide verbal feedback on the test performance to the candidate, and where appropriate also to the driving instructor. In Germany, the driving test examiner must inform the candidate as to the significant errors which were observed, if the driving test is failed. In Austria, the candidate is entitled to know how his test performance has been assessed in the examiner's expertise. To this end, the driving test examiner must discuss the course of the test and the grounds for his decision with the candidate, and must hand a copy of the test report over to the candidate in case of a negative result or prematurely terminated test. If the candidate wishes, he may also receive a copy of the report in the case of a positive test result.

In Finland, the concluding consultation following notification of the test result addresses the candidate's self-assessment of his driving competence. At the beginning of the test, the candidate is asked to give an assessment of his own driving competence on a five-tier scale (from "poor" to "excellent") and with reference to different categories (e.g. "Vehicle operation", "Mastering of traffic situations"). After the driving test, the driving test examiner uses the same categories to elaborate his own assessment. This assessment by the driving test examiner, the self-assessment by the candidate and possible inconsistencies between these two perspectives then form a basis for the concluding discussion. In Norway, the test result is communicated in a conversation lasting between five and ten minutes, during which the driving test examiner also explains his reasons for the test decision to the candidate. In the Australian state of Victoria, the candidate receives not the actual test report, but instead a written summary of the performance assessment.

Pass rates

Significant differences exist between the individual countries with regard to driving test pass rates (see Table 24). The lowest pass rate of around 35 per cent is reported from Poland. At the other end of the scale, approximately 94 per cent of the driving licence applicants in Austria pass their driving test at the first attempt. In the major West European countries, about half of the candidates complete the driving test successfully at the first attempt; Germany is something of an exception in this respect with a relatively high pass rate of 72 per cent. In the neighbouring countries around Germany and the reform-oriented countries, the pass rates are mostly significantly more than 50 per cent. Relatively little information was obtained on

pass rates for the group of the GDL countries; the few data available, however, indicate that around two-thirds of the driving test candidates are immediately successful.

If a driving test is not passed, there are generally certain regulations to be observed with regard to further attempts. In most cases, this means that a minimum time is specified for the period between two tests. In Germany, for example, at least 14 days must pass between the first attempt and a repeat test. In the Australian state of Queensland, the candidate must wait only one day before attempting the driving test again, whereas a period of at least 28 days is prescribed in the Canadian province of Québec. In Estonia, a week must lie between two test appointments, compared to three days in Hungary, 14 days in Israel and 15 days in Romania. In Belgium, it is possible to repeat the driving test on the same day; if the test is failed twice, however, the candidate must take at least a further six driving lessons before a third attempt is allowed. In Poland, five driving lessons are prescribed after three unsuccessful attempts.

In a number of other countries, even the first unsuccessful test already triggers the requirement to attend further training with a professional driving instructor before admission to a repeat test. In Finland, at least three days must pass before the repeat test appointment, and at least two further driving lessons must have been taken in the meantime. In Croatia, the driving test can only be repeated after three further driving lessons. In Greece, the candidate must wait at least a week between the first and repeat attempts, and must have taken at least ten driving lessons.

To summarise, it can be determined that the driving test taken at the threshold to the phase of solo driving possesses particular significance in the process of novice driver preparation. With the EU Directive on Driving Licences, certain minimum standards have been stipulated for the European countries with regard to the framework conditions for test realisation, the methodical design of the test and the test demands to be satisfied. An analysis of the test designs implemented in the individual countries reveals that, beyond the scope of these minimum standards, considerable differences exist in certain areas. This refers, for example, to the aspects of test duration and the specific demands to be mastered by the candidate in terms of technical preparation of the vehicle, the demonstration of basic driving manoeuvres, and a test drive in real traffic.

Noteworthy variation is also to be seen in the methods by which test performance is assessed, and in the forms of feedback given to the candidate on the displayed level of competence and possible competence deficits. In view of the selection and control function of the driving test, a differentiated assessment and qualified feedback on the test candidate's driving competence are important instruments and could contribute to strengthening of these functions in the system of novice driver preparation – this includes also the approach of a second driving test, as practised within the framework of some GDL systems.

3.4 Quality assurance

3.4.1 Overview

In the context of novice driver preparation, quality assurance measures can naturally be applied to the various “modules” of the system concerned, i.e. to the different forms of teaching/learning and testing with their legally stipulated framework conditions (e.g. minimum age requirements or the specification of mandatory elements). On the other hand, it could also be of interest for quality assurance to consider interactions between the individual components of the overall system, in other words the “system architecture”. Against this background, it is possible to identify a number of starting points and levels of intervention for quality assurance measures. It is a common requirement for all such measures, however, is that they be based on scientifically founded evaluation methods, and furthermore that they be aimed at valid description and improvement of the safety-related impact of both the system components and the system as a whole.

At the same time, it is imperative for the planning and implementation of quality assurance to observe one further important aspect: Both the “operational reality” of established forms of teaching/learning and testing, and modifications of the overall system associated with the introduction of new, optimised system components must be evaluated with regard to their quality and especially their positive impact on safety. The former requirement of continuous summative evaluation of the system components is necessitated above all by the processes of constant change affecting the target group (e.g. educational background, mobility needs) and the framework conditions for novice driver preparation (e.g. new teaching and learning media, changed traffic conditions). The second demand for a sound formative and summative

evaluation of new, innovative system components follows not least from the fact that the introduction of such components usually involves greater investments of time and financial means on the part of the novice driver, as well as restrictions on his acquired driving licence rights (e.g. in the form of protective regulations); consequently, the safety impact of such innovations should be not only scientifically founded, but also empirically proven. One noteworthy example of a sophisticated, tested evaluation concept addressing both the presently implemented modules of novice driver preparation and innovative design alternatives for further system development is the German system of quality assurance relating to the theoretical driving test, which is anchored in a “System Manual on Driver Licensing (Theory Test)” (“Handbuch zum Fahrerlaubnisprüfungssystem (Theorie)”, TÜV | DEKRA arge tp 21, 2008). When it comes to the development of new forms of teaching/learning and testing, on the other hand, special (educational) research projects are often conducted to assess their effectiveness in the preparation of novice drivers for safe participation in road traffic, and thus to determine empirically whether the expectations and demands of the legislative authorities are actually met in practice. The numerous systematic analyses of use patterns and the safety impact of accompanied driving subsequent to introduction of the corresponding “BF17” model in Germany (e.g. FUNK et al., 2010) are good examples of such research.

It therefore seems evident that, in order to satisfy the described demands placed on comprehensive quality assurance in the system of novice driver preparation, specific evaluation methods must be elaborated for each individual system element. It is necessary to consider the various forms of teaching/learning and testing and thereby to determine the objectives which they serve, the framework conditions under which they are typically realised, and the ways in which attainment of the given objectives can be assessed validly. This is easier to achieve for the strongly formalised forms of preparation, such as theory classes and the knowledge test, than for the rather informal system elements such as independent theory learning or learner assessments, whose diversity of implementations could actually be seen as a desirable opportunity for individualisation in the learning processes of novice driver preparation, reflecting the different learning situations of novice drivers. There are thus many questions which remained unanswered with regard to quality assurance in the process of novice driver preparation, and in respect of evaluations of the implementation and safety-enhancing

impact of the system components: Few corroborated findings exist, for example, on the learning media and learning techniques used in the context of independent theory learning, or on the frequency and forms of learner assessments realised in the course of practical driving instruction. The aforementioned limitations and research deficits also mean that the following discussion on quality assurance must consider primarily those components of the system of novice driver preparation which are essentially formal or binding in character and – like driving school training and the driving licence test – can be classified as services.

The term “quality” is used in a number of different senses: It may refer to an “attribute” or “inherent property”, or equally to “grades” or “usability”. There is no generally accepted scientific definition of quality, and that applies equally to the education and service sector (KAMINSKE & BAUER, 1995), to which above all the formal provisions for teaching/learning and testing within the framework of driving school training and driving licence testing must be counted. In the international standard DIN ISO 8402, which was applicable until 2008, quality was defined as “the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs” (DEUTSCHES INSTITUT FÜR NORMUNG, 1992); its current successor, DIN ISO 9000, describes quality as the “degree to which a set of inherent characteristics fulfils requirements.”

It can be derived from the above definitions that the concept of quality is in the first instance a relativistic construct, i.e. the quality criteria for certain system components of novice driver preparation are predetermined (by state authorities) and can be viewed from different perspectives. As a result, these quality criteria can be understood as the balance achieved by weighing up the differing demands, needs and value systems of society, the providers and users. The priorities for this process are set by the state as soon as it touches upon important public interests. In the present case, the public interest in road safety must be weighed up against the mobility needs of the individual and the latter's interest in achieving this mobility with minimum expenditure. At the same time, fundamental legal principles must be upheld, including the expectation that measures for novice driver preparation must not only be necessary and in the service of the common good, but also suitable and reasonable in their scope. The latter aspect requires that no less intrusive but equally effective measures are available. In simple terms, this means that the safety-enhancing impact of measures realised in novice driver preparation must be confirmed on

the basis of quality criteria and proven by way of a transparent quality evaluation.

Secondly, quality is a dynamic construct displaying a transitory character. In the context of novice driver preparation, this alludes on the one hand to the changing conditions of the road traffic environment, the demands placed on road users and the quality standards to be applied to driving school training and driving licence testing. On the other hand, it is not least expanded knowledge of the mechanisms of driving competence acquisition which exerts pressure to adapt novice driver preparation and its quality criteria accordingly. Thanks to empirically backed research findings, for example, it is today recognised that the acquisition of driving competence is a process lasting several years and cannot be covered merely by basic driving school training. For the knowledge test, moreover, awareness of the methodical limitations of the multiple-choice format for assessments of hazard recognition produces questions as to how the forms of testing could be differentiated in the sense of traffic perception tests, and at which point in the process of novice driver preparation such tests must be positioned to ensure optimum fulfilment of their control and selection function. These two examples illustrate how quality standards change with increased knowledge and how new quality demands evolve: No-one today expects a traditional knowledge test to contribute substantially to the testing of hazard recognition; the quality criterion in this respect has been lowered. The efforts to determine the optimum placement of the different forms of testing from the perspective of educational psychology, by contrast, represents a heightened quality criterion.

Thirdly, finally, quality is a multidimensional construct with structural, processual and result-related components. The structural quality embraces organisational and institutional framework conditions, which are often controlled by way of legislative provisions, for example the prerequisites to be met by the supervising accompanist in the case of accompanied driving, the available teaching/learning media for independent theory learning, the inventory and features of driving schools and test locations, or the qualifications of driving test examiners and their professional principles (this aspect is occasionally referred to as “orientation quality”). The essential question with regard to structural quality relates above all to the suitability of certain structures as means to promote attainment of the defined qualification objectives. Process quality is understood to refer to how the relevant teaching and evaluation tasks are performed under social (and pedagogical-didactic) aspects, whether by the

accompanist during accompanied driving, by the driving instructor during driving school training or by the driving test examiner during the driving test. Result quality, finally, can be taken to mean the standard of the teaching or testing services performed in their narrower sense, as reflected, for example, in the pass rates in the knowledge and driving tests or, with regard to the driving licence tests themselves, in the objectivity, reliability and validity of the realised tests. It is furthermore to be added that the readily measurable structural aspects of quality often dominate in both quality research and political discussion, whereas the processual elements and result quality are occasionally neglected (STURZBECHER et al., 2010).

It was already mentioned earlier that a complete report on the quality assurance measures implemented in international novice driver preparation is required to address all forms of teaching/learning and testing, and in doing so would need to establish references to all quality dimensions. Such comprehensive analysis was beyond the scope of the present research project, not least because the focus of the project was placed on other issues, namely the elaboration of theoretical and methodical foundations for corresponding comparative studies (e.g. description terminology, research strategies). In the following, therefore, the question of quality assurance in novice driver preparation is to be investigated solely in the contexts of formal driving school training and the traditional driving licence tests, leaving aside quality assurance measures relating to the informal forms of teaching/learning and testing with their relatively variable structural and process conditions (in other words quality assurance in connection with accompanied driving, solo driving under protective regulations – e.g. provisions for the learner driving licence phases in GDL systems – or learner assessments).

Quality assurance in driving school training

Formal training offers comprise above all theory classes, practical driving instruction and advanced training courses (see Chapter 2.3.2), which are generally conducted by professional driving instructors. For assessment of the quality of theory classes and practical driving instruction, it is to a large extent possible to apply the quality criteria known from educational research (EINSIEDLER, 1997; DITTON, 2002); this was demonstrated within the framework of validation studies for observation methods to record the pedagogical-didactic quality of driving school training (STURZBECHER, HERMANN, LABITZKE & SCHELLHAS, 2005). On this basis, the following fundamental principles apply: The persons responsible for in-

struction must motivate the novice driver and support his readiness to learn, the training contents must be appropriately structured and sequenced, the training methods must be selected in accordance with the corresponding contents and implemented in a diversity of forms, and the training is to be designed such that the level of difficulty can be varied adaptively to match the learning prerequisites of the individual novice driver. These criteria represent the pedagogical-didactic process quality (see above). To be able to fulfil the associated demands, driving instructors must possess appropriate pedagogical qualifications equivalent to those required by vocational training. In addition, appropriate formal (e.g. structural and organisational) training conditions must be established; this concerns, for example, inventory standards for the training locations and documentation of the training processes (structural quality). The observance of such processual and structural quality criteria in driving schools is often the subject of state auditing measures.

It is not to be overlooked at this point, that the actually practised methods of quality assurance in driving school training go far beyond the above state-controlled measures, i.e. training for driving instructors and driving school auditing. Mention must also be made of the diverse quality certification processes and quality management systems which driving school operators use to improve their market position. These processes and systems to determine and promote quality are based – to varying degrees and in different combinations – on objective and subjective customer-oriented quality measurements (e.g. expert observations, customer surveys) on the one hand, and on objective and subjective enterprise-oriented measurements (e.g. quality audits, benchmarking, staff surveys) on the other hand; such measurements have their origin in the economic sciences and are used to monitor the quality of services (MEFFERT & BRUHN, 2003). It was not an aim of the present study, however, to perform a deeper analysis of the content-related design and international range of such non-state quality measurement and quality control methods.

Quality assurance in driving licence testing

The individual driving licence tests (e.g. knowledge tests, driving tests) possess different functions in the systems of novice driver preparation: On the one hand, they serve to ensure that only driving licence applicants who are adequately prepared for participation in motorised road traffic are granted access to the corresponding levels of driving entitlements (e.g. learner driving licence, driving licence for solo driving) offered by the driver licens-

ing system (“selection function”). On the other hand, the test demands also have bearing on the preceding teaching and learning processes, by lending substance to the teaching and learning objectives specified for novice driver preparation in legislation – and thus to be achieved by the test candidate – with regard to training content and the required competence level (“control function”). They thus influence the manner in which novice drivers are prepared or themselves prepare for solo driving. At the same time, driving licence tests also record the result quality of measures for novice driver preparation, and in this way permit empirically founded and targeted further development of the training elements. The aspect of system control is complemented by the aspect of control for individual teaching and learning activities: The test standards thus provide orientation, in the widest sense, for the novice driver to plan his teaching and learning strategies.

The extent to which these possibilities can be exploited is dependent on the quality of the driving licence test system, which in turn results from the quality of the framework conditions and test methods (e.g. tests, behaviour observations), from the professional qualification of the driving test examiner, and from the latter's competence in realising the various test methods. The state-imposed stipulations which govern the training⁵³ of driving test examiners, as well as evaluation and further development of the instrumental standard of the test methods used, are consequently important elements of the quality assurance systems for driver testing in many countries. As in the case of the driving schools, these elements are often supplemented by internal quality management systems of the authorities and the test organisations entrusted with test realisation. A similarly broad range of methods is used in connection with examiner training, and generally includes internal quality audits, customer surveys and complaint management procedures. The use and design of these quality assurance methods, which were not a declared subject of the present analysis, may be prescribed by state authorities in a more or less detailed form, for example by way of accreditation rules adopted by the test organisations. The corresponding situation in the German system of driver licensing has been described in depth by STURZBECHER, BÖNNINGER and RÜDEL (2010).

⁵³ In Germany, driving test examiners must complete at least six months of additional training after obtaining a relevant engineering degree; this postgraduate course is termed “Befugnisausbildung” (“qualification training”), in order to emphasise the distinction from basic university training.

To permit an initial – necessarily still very incomplete – insight into the international diversity of quality assurance measures in novice driver preparation, the following chapters will first present examples of the training regulations applicable to driving instructors and the state auditing measures implemented to monitor commercial driving schools from different countries. Subsequently, stipulations governing the qualification and training of driving test examiners are to be described, before concluding with a comparison of the methods implemented in individual countries to control the methodical and content-related quality of driving licence tests.

3.4.2 Training of driving instructors

With regard to quality assurance for the area of formal driving school training, it is interesting to know which professional and personal prerequisites must be met by driving instructors in the various countries, how the training and testing processes leading to the corresponding professional qualification are organised, and to what extent those practising the profession of driving instructor are obliged to attend further training measures. An overview of such information is given by Table 25 on the next page.

Prerequisites for admission to the profession

Admission to the profession of driving instructor is subject to different sets of prerequisites in the individual countries. These prerequisites may refer to personal and health-related fitness, age or a prior level of school or professional education.

Minimum age requirement:

It can be seen from Table 25, that the legally stipulated minimum age for admission to the profession of driving instructor is usually 21 years or more in the major West European countries, the neighbouring countries around Germany and the reform-oriented countries. The highest minimum age requirement is 24 years in the Czech Republic, followed by 23 years in Germany and Switzerland; the lowest minimum age is that in the Netherlands at 18 years. In the GDL countries, it is in most cases possible to work as a driving instructor from an age of 21 years or above; it is only in New Zealand and the Australian state of Queensland that lower age thresholds apply, namely 19 and 18 years, respectively.

Country	Group	Prerequisites (for admission to the profession)			Training stipulations	
		Minimum age in years ¹	Educational attainment ²	Driving licence since ... years	Theoretical training	Practical training
D	WEU	23	1	3	770 hrs	
E	WEU	20	1	2	210 hrs	
GB	WEU	21	-	4	-	-
I	WEU	21	1/2	-	150 hrs	
F	WEU/NBR	22	1	3	630 hrs	
B	NBR	22	-/2	3	X	X
CH	NBR	23	1	2	700 hrs	
CZ	NBR	24	1	3	140 hrs	90 hrs
DK	NBR	21	- ³	3	X	X
L	NBR	20	1	2	X	X
PL	NBR	21	2	3	190 hrs	
A	NBR/REF	21	1/2	3	330 hrs	60 hrs
NL	NBR/REF	18	1	-	-	-
FIN	REF	21	2	3	2700 hrs	
N	REF	21	2	3	3360 hrs	
S	REF	21	2	3	2520 hrs	
BG	-	23	2	-	X	X
CY	-	24	2	5	-	-
EST	-	21	1/2	3	X	X
GR	-	21	2	3	1680 hrs	
H	-	22	2	2	290 hrs	170 hrs
HR	-	24	2	3		
IL	-					
IRL	-	19	-	2	-	-
IS	-	23	2	3	430 hrs	70 hrs
LT	-	21*	2	3	210 hrs ⁴	
LV	-	21	1/2 ⁵	3	132 hrs ⁶	26 hrs ⁷
M	-	19	-	1	-	-
P	-	20	2	2	280 hrs	
RO	-	25	2	5	140 hrs	
RUS	-					
SK	-	25	2	3	230 hrs	
SLO	-	21	1/2	3	210 hrs	
TR	-					
AUS/NSW	GDL	21	-	3	X	X
AUS/QLD	GDL	18*	-	1	X	X
AUS/VIC	GDL	22*	-	-	360 hrs	
CDN/NS	GDL				40 hrs	40 hrs
CDN/ON	GDL	21;8*	-	4	95 hrs	45 hrs
CDN/QC	GDL	21*		2	X	X
NZ	GDL	19	-	2	X	X
USA/CA	GDL	21	2 ⁸	-	60 hrs	
USA/FL	GDL	-	-	-	32 hrs	
USA/NC	GDL				80 hrs	

Tab. 25: Prerequisites and training stipulations for the profession of driving instructor ("X" = applicable, "-" = not applicable; grey cells = no information available; "hrs" = hours; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹Where the minimum age requirement is derived from the period of driving licence possession, this is indicated with an asterisk (*)
²"1" = Secondary school certificate, "2" = Advanced school certificate, "1/2" = Different levels of school certificate for instructors for theory classes and practical driving instruction; ³ At least seven years (basic) school education; ⁴ Refers to instructors for theory classes. ⁵ Driving instructors must also hold a Master or Bachelor degree from a university. ⁶ Refers to driving instructors for both theory classes and practical instruction. ⁷ Refers to practical driving instructors, plus 126 hrs of theoretical training; ⁸ "High School" diploma or equivalent school education.

The aforementioned minimum age requirements cannot be understood to mean that driving instructors are actually able to or typically do start work in the profession at this age, because there are various other prerequisites which must also be met, for example a minimum period of prior driving licence possession or completion of a longer course of driving instructor training. In some countries, a minimum age is stipulated not only for admission to the profession of driving instructor, but also separately for the commencement of professional qualification training (e.g. 18 years in France, or 21 years in Germany).

Educational attainment:

A diversity of stipulations apply in the different countries in respect of the required level of attainment during prior school or professional education (see Table 25). In the major West European countries, the neighbouring countries around Germany and the reform-oriented countries, the usual requirement is a certificate of school education at either secondary level (i.e. 9 or 10 years of schooling) or advanced level (i.e. 12 or 13 years of schooling). In most GDL countries, by contrast, no particular level of educational attainment is prescribed.

When considering the prerequisites relating to educational attainment, it must be noted that, in a few countries, different levels of qualification are defined for driving instructors seeking a licence to provide instruction for vehicle class B; a distinction is sometimes made between driving instructors who are only allowed to provide practical driving instruction and those who are permitted to hold also – or exclusively – theory classes. In Estonia, Italy and Austria, for example, instructors for practical driving instruction require only a certificate of secondary-level education, whereas instructors for theory classes must obtain an advanced-level certificate (constituting the entitlement to commence university study). In Latvia, driving instructors who give theory classes are even required to have obtained at least a Master or Bachelor degree from a university; the course subject, however, is not decisive. In Belgium, no particular school certificate is prescribed for providers of practical driving instruction for vehicle class B.

Certain countries also stipulate that prior professional qualifications must be obtained, alongside a particular level of general school education. In Germany, for example, professional training in a recognised teaching profession is required. In Austria, driving instructors who wish to hold theory classes must provide evidence of at least five years of professional experience as a driving in-

structor in practical driving instruction during the past eight years. In Finland, a three-year professional qualification or a certificate of higher education is a prerequisite for admission to driving instructor training.

Prior driving licence possession:

In most countries, applicants must have held a driving licence for a certain minimum period before being accepted to commence driving instructor training (see Table 25).

In the group of major West European countries, there is significant variation in the required period: The minimum period of driving licence possession is four years in Great Britain, three years in Germany and France, two years in Spain, and only Italy makes no stipulations in this respect. Among the neighbouring countries around Germany and the reform-oriented countries, only the Netherlands has no specifications with regard to prior possession of a driving licence, while Switzerland and Luxembourg each prescribe two years and the other countries three years. In Austria, this rule specifies furthermore that the future driving instructor must have possessed a driving licence for the particular vehicle class for at least three years; this minimum period may be reduced to one year by taking part in a so-called “substitutive practice seminar”. In the group of GDL countries, the Canadian province of Ontario sets the longest minimum period of driving licence possession at four years. In the Australian state of New South Wales, the requirement is possession of an unrestricted driving licence for at least three of the past four years. In the remaining countries in this group, either a shorter minimum period or else no minimum period whatsoever is stipulated.

The comparison of all the countries considered by the project reveals the longest minimum periods in Romania and Cyprus, namely five years, whereas the remaining countries usually demand possession of a driving licence for two or three years.

In a few countries, driving instructors must possess a driving licence not only for the vehicle classes for which they provide instruction, but also for further vehicle classes. In Finland, for example, a driving instructor must always hold a driving licence for classes A, B and C, and in Germany for at least the classes A, B/BE and C/CE. In Estonia, Greece and Romania, instructors are even required to possess a driving licence valid for all classes.

Further prerequisites:

As a further prerequisite for admission to driving instructor training, and likewise for later practising of the profession, most of the countries analysed

demand proof of health-related fitness. In Great Britain and Malta, the health check consists merely of a test of adequate vision, which is performed within the framework of the mandatory driving test for driving instructors. In many other countries, on the other hand, a more comprehensive medical check-up is prescribed – presumably including also an eyesight test. In Germany, it is an explicit demand that an eyesight test be performed by an ophthalmologist, alongside a general health check. The assessment of medical fitness in Luxembourg, Portugal, Spain and Hungary includes also psychological examinations. In the Australian state of Victoria, where a certificate of physical and mental health must be presented, the minimum health requirements correspond to those applicable for persons working in driving occupations.

In addition, practically all countries provide for inspection of the candidate's personal and driving records, so as to be able to consider previous traffic-related or other legal offences. In Austria, for example, this check must not reveal convictions for violations of traffic laws or traffic police regulations. In New Zealand, the road traffic authorities perform a comprehensive personal character check for all applicants for driving instructor training ("Fit and Proper Person Check"). This check covers all legal offences and traffic-related infringements, including any unpaid fines, and also takes in account possible complaints from traffic authorities where the candidate has previously been employed.

Training stipulations

The second half of Table 25 (see above) shows that driving instructor training is not directly prescribed in all the countries addressed by the present report (Great Britain, Ireland, Malta, the Netherlands, Cyprus). Professional qualification is organised accordingly in the form of voluntary training offers. Whether and to what extent an adequate level of professional qualification is achieved, must then be demonstrated within the framework of the corresponding tests (see below). In the majority of countries, however, driving instructor training is an express requirement. There are nevertheless significant differences in the specified scope of training.

Among the major West European countries, the greatest scope of training is to be found in Ger-

many (770 hours). Especially extensive training is stipulated in the reform-oriented countries: Finland, for example, specifies 2,700 hours of training; this includes provisions for a senior driving instructor to provide theoretical and practical instruction for his future colleague. In Norway, driving instructor training is a course of study at a university. The basic training is spread over a period of 24 months (four university semesters) and occupies a total of 3,360 hours. This basic training can then be extended with a choice of special thematic modules (e.g. driving school management) and leads after a further semester to a Bachelor or Master degree. In Sweden, a total of 2,520 hours of training are completed over a period of approximately 18 months; the subject areas covered by the training include "Health and safety in the work environment", "Vehicle safety and the environment", "Road traffic law", "Traffic psychology" and "Road safety promotion". Further key components are practical exercises, exercises on teaching methods, field observations and supervised teaching experience. The trainee driving instructors are assessed within the framework of the individual training components, meaning that no additional professional qualification tests are conducted (see below).

In the GDL countries, too, a course of training is usually prescribed for those seeking admission to the profession of driving instructor. The scope of this training, however, is relatively small compared to the other countries and groups of countries. Among those GDL countries for which data was received, the most extensive training is specified in the Australian state of Victoria, namely 360 hours.

Professional qualification tests

In the majority of the countries covered by the present project, prospective driving instructors must pass certain professional qualification tests. Possible components of such tests are special driving tests, oral and written knowledge tests, and evaluations of "teaching samples" (theory classes and practical driving instruction sessions). A corresponding overview is given in Table 26 below. In a number of countries, the commencement of training is preceded by an aptitude test (e.g. in France, Ontario and Hungary).

Country	Group	Testing					Further training	
		Oral knowledge test	Written knowledge test	Driving test	Evaluation of theoretical instruction	Evaluation of practical instruction	Mandatory training	Every ... years
D	WEU	X	X	X	X	X	X	4
E	WEU	X	X	X	-	-	-	-
GB	WEU	-	X	X	-	X	-	-
I	WEU	X	X	X	-	-	X	1
F	WEU/NBR	X	X	X	X	X	-	-
B	NBR	X	X	-	X	X	X	1
CH	NBR	X	X	X	X	X	X	5
CZ	NBR	X	X	X	X	X	-	-
DK	NBR	X	X	X	X	X		-
L	NBR	-	X	X	X	X	-	-
PL	NBR	X	X	X	X	X	X	5
A	NBR/REF	X	X	X	-	X	-	-
NL	NBR/REF	X	X	X	-	X	X	5
FIN	REF	-	X	X	X	X	-	-
N	REF	-	X	X	-	X	-	-
S	REF	-	-	-	-	-	-	-
BG	-	X	X	-	-	-		-
CY	-	-	X	X	X	X		-
EST	-	-	-	X	X	X	X	5
GR	-	X	X	X	-	-	-	-
H	-	X	X	X	X	X	X	1
HR	-	X	X	X	X	X	X	4
IL	-							
IRL	-	-	X	X	-	X	-	-
IS	-	X	X	X	X	X	X	3
LT	-	-	X	-	X	-	X	5
LV	-	X	-	X	-	-	X	5
M	-	X	-	X	-	X	-	-
P	-	-	X	X	-	X	X	5
RO	-	-	X	X	X	X		-
RUS	-							
SK	-	X	X	X	X	X	X	5
SLO	-	X	X	X	X	X	X	3
TR	-							
AUS/NSW	GDL	-	X	X	X	X	X	5
AUS/QLD	GDL							
AUS/VIC	GDL	X	X	X	X	X	-	-
CDN/NS	GDL							
CDN/ON	GDL	X	X	-	X	X	-	-
CDN/QC	GDL							
NZ	GDL	-	-	X	-	X		
USA/CA	GDL		X				X	3
USA/FL	GDL							
USA/NC	GDL	X	X	X	X	X	X	4

Tab. 26: Testing and further training for driving instructors ("X" = applicable, "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

As can be recognised from Table 26, the prospective driving instructors must pass a written knowledge test in almost all the countries considered in the present report, and in many countries furthermore an oral knowledge test. In addition, they must usually take a special driving test, though the duration of this test varies considerably from country to country: It lasts only 30 minutes in Slovakia, the Czech Republic and Hungary, compared to 60 minutes in Germany, Great Britain and Italy, 90 minutes in the Netherlands, and even 180 minutes in Norway. In New Zealand, the driving test which is taken as part of the regular driving license test (see Chapter 3.3.5) must be repeated in the course of driving instructor training, if more than five years have passed since it was originally passed; at the same time, all candidates must pass a special driving test ("Advanced Assessment Drive").

A sample demonstration of teaching ability is similarly required in the majority of the analysed countries. Among the major West European countries, this is only prescribed in Germany, France and Great Britain. In Great Britain, professional driving instructors must pass an accreditation test organised by the "Driving Standards Agency", including among other things the evaluation of teaching performance within the framework of a practical instruction session; this teaching sample lasts 60 minutes. In Germany and France, by contrast, teaching performance is evaluated for both theory classes and practical driving instruction. Both evaluation sessions last 45 minutes in Germany; in France, on the other hand, the theory class section lasts 55 minutes and the demonstration of practical driving instruction 65 minutes. Practically all countries in the groups of neighbouring countries around Germany and reform-oriented countries likewise prescribe a test instruction session; the duration varies between 30 minutes (Denmark) and 45 minutes (Belgium, Finland, Luxembourg) for the theory class, and from 30 minutes (Denmark) via 45 minutes (Belgium, Finland, Norway, Czech Republic) up to 60 minutes (Luxembourg, Netherlands) for practical driving instruction. In the GDL countries, too, it is usual to demand a demonstration of teaching ability as a component of professional qualification tests; no precise data were obtained, however, on the required duration of such teaching samples.

The teaching samples are generally conducted with actual learner drivers (e.g. in Germany, Great Britain, Luxembourg, Austria and Cyprus), or else teaching situations are simulated in the form of role play (e.g. in Belgium, Ireland, Portugal). In Belgium, for example, the director of the driving

school assumes the role of the learner driver. For the sample of practical driving instruction in Ireland, this role is assigned to an examiner of the "Road Safety Administration", which, as the road traffic authority, is also responsible for the testing and licensing of driving instructors. In Luxembourg, simulation is only used for the theory class, with pupils of a technical high school acting as learner drivers. In Finland, on the other hand, the theory class is conducted with actual learner drivers, whereas a member of the examining committee acts as the learner driver for the demonstration of practical driving instruction.

Further training

The right-hand columns of Table 26 show whether and, if so, at which regular intervals driving instructors are required to attend further training measures. As can be seen, the responsibility for participation in further professional training lies solely with the driving instructor himself in many countries; there is no legal obligation to attend further training in such cases.

Further training is only mandatory for driving instructors in Germany and Italy in the major West European countries, only in Belgium, Switzerland and Poland in the group of neighbouring countries around Germany, and only in the Netherlands among the reform-oriented countries. The intervals at which corresponding certificates of further training must be obtained vary between one year (Belgium, Italy) and five years (Netherlands, Poland, Switzerland). Little information is available with regard to further training obligations in the GDL countries. The maximum intervals between further training here lie between three years (California) and five years (New South Wales).

Alternatively, or else alongside the specification of further training obligations, many countries place a time limit on the period of validity of the driving instructor licence. To renew the licence, it is then often necessary to undergo a health check and possibly to present certificates to document participation in further training measures. In France, for example, further training is not prescribed, but a medical examination is a prerequisite for extension of the driving instructor licence every five years, and the instructor's record is inspected once more to determine any legal offences which may have been committed in the meantime. In Denmark, a doctor's certificate must be presented when applying for licence renewal, alongside evidence that the profession has been exercised on a regular basis. In Poland, certificates must be presented every five years to document the completion of physical and psychological examinations, as well

as further training attendance; similar regulations apply also in Portugal (medical examination and 60 hours of further training). In the Australian state of Victoria, driving instructor licences are normally issued for three years, but exceptionally for only one year if the person concerned suffers from any health impairment which requires an annual examination.

There are furthermore a number of countries which require that certain tests be repeated before a driving instructor licence can be renewed: Driving instructors in the Netherlands, for example, must attend theoretical training on a total of three days over a five-year period; in addition, their teaching is evaluated within the framework of two 110-minute sessions of practical driving instruction with learner drivers. In Croatia, the driving instructor's professional competence is assessed every four years. Slovakia demands 40 hours of further training for extension of the instructor licence, and prescribes a renewed test. In the Australian state of New South Wales, the initial accreditation is followed up every five years with external audits performed by the "Roads and Traffic Authority"; this procedure also includes further driving tests. In the US state of California, driving instructors are tested every three years, or else required to furnish proof of continuous further training in the field of road and traffic safety.

3.4.3 Auditing of driving schools

Alongside the qualification and further training of driving instructors, the auditing of driving schools and their driving instructors by external institutions is a further important component of quality assurance. In the following, it is to be investigated, whether and with which scope audits are performed, if at all, and which aspects of the driving schools are assessed in the course of these audits. Table 27 provides an overview based on survey information received from relevant experts.

Overall, information on the frequency and subjects of driving school audits is only available for a small number of countries. As can be seen from the contents of Table 27, the auditing measures in most of the countries covered by this report relate merely to the classrooms used, the available teaching media and the training vehicles used for the practical driving instruction (so-called "formal audits"); at the same time, however, some audits assess also

the pedagogical-didactic quality of the theory classes and practical driving instruction by way of participatory expert observations (also referred to as "quality audits" or "supervisions").

In Germany, state auditing measures are generally prescribed every two years; this interval may be extended to four years, however, if no or only minor deficits are determined in two successive audits. The authorities are also permitted to waive the standard periodic audits if the driving school participates in an officially approved quality assurance system; on the other hand, no such system actually exists to date. In a number of German federal states, "pedagogically qualified driving school auditing" (STURZBECHER, 2004) is realised by the authorities or correspondingly appointed experts. This system combines formal auditing measures (e.g. equipment standards, documentation, training vehicles) with comprehensive monitoring of the professional and pedagogical-didactic quality of the theory classes and practical driving instruction.

Norway has installed a similar system of auditing and implements the measures via a state-recognised institution. In a few countries, the audits are performed more frequently: When a driving school is opened in Belgium, for example, the classrooms, teaching materials and training vehicles are subjected to corresponding inspection and the compliance with further specifications and requirements (e.g. driving instructor certificates, insurance, fire safety regulations) is verified – as is also the case in Germany; after opening, the state audits are then performed at approximately annual intervals. Annual audits are also prescribed for driving schools in Croatia, where they monitor not only structural properties (e.g. equipment standards, documentation requirements), but also the pedagogical quality of the theory classes and practical driving instruction; If any deficits are determined, they must be rectified within 15 days.

The most frequent state monitoring is reported from the US state of California. Here, the driving schools and driving instructors are assessed and certified by the responsible road traffic authority ("Department for Motor Vehicles"); the training vehicles are checked at intervals of six months.

Country	Group	Subjects of audits				
		Classrooms	Teaching media	Training vehicles	Pedagogical quality of theory classes	Pedagogical quality of practical instruction
D	WEU	X	X	X	X ¹	X ¹
E	WEU					
GB	WEU	-	-	-	-	X
I	WEU					
F	WEU/NBR	X	X	X	X	X
B	NBR	X	X	X	-	-
CH	NBR	X	X	X	X	X
CZ	NBR	X	X	X	X	X
DK	NBR					
L	NBR	X	X	X	-	-
PL	NBR					
A	NBR/REF	X	X	X	-	-
NL	NBR/REF	-	-	-	-	X
FIN	REF					
N	REF	X	X	X	-	X
S	REF	X	X	X	X	X
BG	-					
CY	-					
EST	-					
GR	-	X	X	X	-	X
H	-	X	X	X	X	X
HR	-	X	X	X	X	X
IL	-					
IRL	-					
IS	-	X	X	X	X	-
LT	-	X	X	X	-	-
LV	-	X	X	-	-	-
M	-					
P	-					
RO	-					
RUS	-					
SK	-	X	X	X	-	-
SLO	-					
TR	-					
AUS/NSW	GDL	-	X	X	-	X
AUS/QLD	GDL	-	-	X	-	-
AUS/VIC	GDL	-	-	-	-	-
CDN/NS	GDL					
CDN/ON	GDL	X	X	X	X	X
CDN/QC	GDL	X	X	X	X	X
NZ	GDL					
USA/CA	GDL			X		
USA/FL	GDL					
USA/NC	GDL					

Tab. 27: Subjects of driving school audits ("X" = applicable, "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ Not in all federal states.

In countries in which novice drivers acquire their initial knowledge primarily by way of independent theory learning (see Chapter 3.2.3), theory classes in driving schools are of no relevance, or at most play only a subordinate role. The structural and process quality of theoretical instruction (e.g. classrooms, availability of teaching media, pedagogical-didactic quality of teaching) is consequently not a subject for state quality audits in such countries (e.g. Great Britain, New South Wales, Victoria). The quality assurance measures instead serve above all to monitor the quality of practical driving instruction. In Great Britain, for example, the quality of driving schools is monitored exclusively by way of personal audits ("Check Test"), where the driving instructor is accompanied during a session of practical driving instruction by a specially trained examiner from the "Driving Standards Agency". These tests are conducted at intervals of either two or four years, depending on the result of the previous test.

In countries in which formal driving school training is mandatory and binding curricula exist, the quality assurance measures usually address also observance of the prescribed training contents and scope: In Iceland, driving schools elaborate teaching plans on the basis of a general framework curriculum, the implementation of which must be documented by recording, for example, the times and specific content of course units, the responsible driving instructor and the learners present. The teaching plans and records must be presented to a state-recognised institution each year.

A few countries publish information on the driving test pass rates for pupils of a particular driving school, in the sense of result quality monitoring and transparency (e.g. Belgium, Estonia, Finland, France, Latvia, Netherlands, Slovakia, Switzerland). In the Netherlands, for example, the test organisation "Centraal Bureau Rijvaardigheidsbewijzen" offers access to an Internet database with the names and addresses of driving schools⁵⁴. It is then possible to discover how many initial tests were conducted in total for pupils of a particular driving school during a certain period, and how high the pass rates were for these pupils both at their first attempt and after a repeat test. For comparison, an average pass rate is specified for all the driving tests conducted in the region in which the driving school is located.

3.4.4 Training of driving test examiners

By way of driving licence tests, novice drivers are required to demonstrate that they have acquired adequate driving and traffic competence to be allowed to participate in motorised road traffic – either with supervision or else solo under protective regulations, depending on the conditions of the given system of novice driver preparation. Driving licence tests, and in particular the work of the driving test examiner, are thus of high relevance for road safety. The examiners must acquire specific competences for the realisation of driving licence tests, taking into account the appropriate distinctions between the different types of test (knowledge test, driving test).

Realisation of the knowledge test, from the methodical perspective a highly standardised test, places relatively low demands on the examiner: Especially in the case of a computer-assisted knowledge test, his responsibilities at the beginning of the test are limited to introduction of the test procedure to the candidate, explanation of the general test conditions, and possibly assistance to overcome test anxiety. The instructions for specific test items, realisation and evaluation of the test, determination of a test decision, and explanation and documentation of the test result, including communication of any derived hints for further learning, are handled by the test computer. All that remains for the examiner is the clarification of open questions and announcement of the end of the test, including – above all in the case of an unsuccessful test attempt – an appropriately supportive reaction to the emotions of the candidate after receiving the test result.

In the driving test, which can be characterised methodically as a work sample assessed by way of systematic behaviour observation⁵⁵ (STURZBECHER, 2010), on the other hand, the examiner must also take responsibility for the aforementioned additional tasks. At the same time, he must meet a significantly more complex challenge, namely development of an adaptive test strategy and continuous modification of both his overall test concept and the planned (further) course of the test in accordance with the performance shown by the candidate and the constantly changing traffic situation.

⁵⁴ <http://www.rijnschoolgegevens.nl/> (12 August 2011)

⁵⁵ "Work samples" are a form of testing which is encountered especially in the context of vocational training and personnel diagnosis; "systematic behaviour observation" is a term used in the social sciences to describe observation methods which satisfy particular design, documentation and evaluation standards (EBBINGHAUS & SCHMIDT, 1999; KANNING, 2004; SCHULER, 2001).

According to STURZBECHER et al. (2010), the demands placed on the driving test examiner can be summarised as follows:

1. Planning and structuring of the test or observation situation on the basis of demand standards (e.g. test elements, driving tasks) and through determination of the test route
2. Systematic observation of the behaviour of the test candidate on the basis of observation categories which reflect the candidate competences to be tested
3. Assessment of the behaviour of the test candidate on the basis of assessment criteria and documentation of the result of this assessment by way of a test report
4. Elaboration of decision preferences and appraisal of the corresponding certainty and justification of this test decision (this involves, furthermore, consideration of the possible necessity to verify the decision preferences, leading in turn to further development of the original test concept and to the planning and structuring of new observation situations)
5. Decision-making (including the final test decision).

It seems beyond doubt that proper fulfilment of the aforementioned demands requires specific professional aptitudes on the part of driving test examiners (e.g. awareness of responsibility in the context of personal maturity, ability to adopt the perspective of others), and that this can only be achieved on the basis of corresponding qualification training. The latter is also significant against the background that, in order to satisfy methodical quality demands and the precept of test equality, driving tests should be conducted under uniform conditions to the greatest possible degree. This necessity naturally collides with the limited possibilities for standardisation of the driving test due to the inability to plan and influence environmental and traffic conditions. For the planning of test demands in a concrete test situation, and likewise for assessment of the test performance, this discrepancy must be compensated by way of criterion-referenced actions on the part of the examiner. Under these circumstances, "observer training" is imperative as the most important means to improve methodical quality, alongside quality assurance measures and continuous evaluation of the process (KANNING, 2004).

The aptitude prerequisites for driving test examiners, the qualification and training necessities, and expedient quality assurance measures should be reflected in corresponding legal specifications. In

the EU Directive on Driving Licences (in Annex IV "Minimum standards for persons who conduct practical driving tests"), requirements are defined to govern, among other things, the prerequisites for admission to the profession of driving test examiner, the basic qualification of examiners, and measures for quality assurance and periodic further training. Driving test examiners for vehicle class B, for example, must have held a class B driving licence for at least three years. Furthermore, they must be at least 23 years of age and must have completed vocational training. It is moreover stipulated that prospective driving test examiners must have successfully completed a corresponding training programme to acquire the necessary basic qualification. The minimum standards anchored in the EU directive are intended to be transposed into national legislation in the member states of the European Union by 2013.

The following sections offer an overview of the relevant legal provisions currently applicable in the countries covered by this report. They describe the personal and professional prerequisites to be met by driving test examiners (see "Prerequisites for admission to the profession"), the professional qualification and training they must complete (see "Training stipulations"), and whether or not the participation in further training measures is a mandatory requirement (see "Further training").

Prerequisites for admission to the profession

Table 28 outlines the prerequisites to be met for admission to the profession of driving test examiner with regard to a minimum age requirement, the level of prior educational attainment and the period for which the candidate must have held a driving licence, as well as any further relevant conditions.

Minimum age requirement:

As can be seen from the table, the prescribed minimum age for driving test examiners is in most countries 23 years or above. In the group of major West European countries, the lowest minimum age is 20 years in Spain, and the highest 26 years in Great Britain. Among the neighbouring countries around Germany and reform-oriented countries, the age threshold is lowest in Finland at 22 years, and highest in the Netherlands at 28 years. The lowest minimum age requirement overall is to be found in the GDL countries, namely 19 years in New Zealand. It must furthermore be noted that the minimum age requirements for driving test examiners display considerable variance, but without there being any visible special reasons for the differences from one country to another.

Country	Group	Prerequisites (for admission to the profession)			
		Minimum age in years ¹	Educational attainment ²	Driving licence since ... years	Further prerequisites
D	WEU	24	3	-	Engineering degree; 1.5 yrs work experience
E	WEU	20		2	Entry test
GB	WEU	26	-	5	No traffic offences; communication skills
I	WEU				
F	WEU/NBR	21*	2	3	No traffic offences; high school or techn. qualification
B	NBR	25	2	7	Exemplary conduct; no DL withdrawal; med. certificate
CH	NBR	24	2	3	Aptitude evaluation; car mechanic or similar training
CZ	NBR	25		5	No DL withdrawal in past 5 yrs; not previously DI
DK	NBR				Member of police or vehicle inspection organisation
L	NBR	24	3	-	Degree from a university of applied science
PL	NBR	-	3	6	Psych. and med. certificate; certificate of good conduct
A	NBR/REF	27	2	5	No traffic offences; work experience as DI
NL	NBR/REF	28	2	10	Entry test; flawless conduct; medical examination
FIN	REF	22	2		1 year work experience as DI; entry test
N	REF	23	3	3	Work experience as DI or engineering degree
S	REF	-	2	3	Professional aptitude; entry test
BG	-	28*	2	5	5 yrs DL; not DI; no criminal record; aptitude
CY	-				
EST	-	25	3	8	No traffic offences; not working as DI
GR	-	23*		5	Member of staff of transport ministry
H	-	25	3	3	5 yrs experience as DI or engineer; entry test
HR	-	21	3	3	3 yrs work experience as DI
IL	-	25	2	8	Certificate of good conduct; military service; entry test
IRL	-	22			Certificate of good conduct; entry test
IS	-	21	3	5	Psychological and medical certificate
LT	-	23	3	3	Degree in engineering science, education or law
LV	-	21	3	3	-
M	-				
P	-	24	2	2	Medical and psychological examination
RO	-	23	-	3	Psychological and medical certificate every 5 yrs
RUS	-	23	2	3	University degree or subject-specific training
SK	-	24		3	Work experience as police officer
SLO	-	23	2	3	3 yrs work experience as DI; aptitude test
TR	-				
AUS/NSW	GDL	20*	-	-	-
AUS/QLD	GDL	21	-	1	No criminal record or traffic offences
AUS/VIC	GDL				
CDN/NS	GDL				
CDN/ON	GDL	-	-	-	Professional aptitude
CDN/QC	GDL	-	-	2	-
NZ	GDL	19	-	2	"Fit and proper person check"; eyesight test by doctor
USA/CA	GDL				
USA/FL	GDL				
USA/NC	GDL				

Tab. 28: Prerequisites and training stipulations for the profession of driving test examiner ("X" = applicable, "-" = not applicable; grey cells = no information available ; "DI" = driving instructor; "DL" = driving licence, "yrs" = years; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks :

¹ Where the minimum age requirement is derived from the period of driving licence possession, this is indicated with an asterisk (*). ² "1" = Secondary school certificate, "2" = Advanced school certificate , "3" = University degree

Educational attainment:

In many countries, prospective driving test examiners must possess a certain school education certificate, university degree or relevant work experience to become entitled to commence specific professional qualification (see Table 28). With regard to school education, the majority of the countries analysed demand an advanced school certificate (i.e. 12 or 13 years of general school education). There are furthermore many in which the candidate must have completed also a course of university study: In Luxembourg, driving test examiners must hold a degree from a university of applied science, while Lithuania requires a university degree in an engineering science, education, law or a traffic-related subject. In Latvia, a university degree in mechanical engineering is necessary, and in Germany a corresponding certificate as an engineer. In Norway, work experience as a driving instructor or engineer is a prerequisite; both of these professions are preceded by university studies. A university degree is similarly a prerequisite for admission to the profession of driving test examiner in Estonia, Iceland, Croatia, Lithuania, Poland and Hungary.

Prior driving licence possession:

In practically all the countries considered by the present project, a minimum period of prior driving licence possession is prescribed (see Table 28). In most cases, a period of three years or more is specified. Viewed overall, particularly long periods are specified for driving test examiners in the Netherlands at ten years, and in Estonia and Israel with eight years. The shortest periods reported lie between one year (Queensland) and two years (e.g. Portugal, Spain).

Further prerequisites:

In a number of countries, the profession of driving test examiner is only open to those who have previously worked as a driving instructor (e.g. in Bulgaria, Finland, Croatia, Slovenia, Hungary). In Finland, for example, at least one year of experience as a driving instructor is required, compared to five years of experience in Hungary (either as a driving instructor or as an engineer). Bulgaria also stipulates a minimum of five years, whereas three years is sufficient in Croatia and Slovenia. In Norway, driving test examiners will in future be required to furnish proof of at least two years of driving instructor training at university level, or an equivalent course of training, as well as work experience as a driving instructor or engineer. The prerequisites for training as a driving test examiner (or so-called "traffic expert") in Switzerland are a certificate of vocational training as a vehicle mechanic or automotive mechatronics technician or in

a technically equivalent occupation, and one year of work experience since completing basic vocational training. In a few countries, responsibility for the conducting of driving licence tests lies with the police; in such countries, candidates for the profession of driving test examiner must thus already be members of the police force (e.g. in Denmark and Slovakia).

Training stipulations

As can be derived from Table 29 below, most countries prescribe a specific course of training for driving test examiners. Detailed information on the duration and contents of this training is only available for a few individual countries. The training generally comprises theoretical and practical components, as well as field observations or periods of probation in the test organisation. The duration of training varies between a few weeks and one year.

In the major West European countries, relatively long periods of training are prescribed in Germany with at least six months and in France with seven months. In Great Britain, by contrast, the training lasts only four to six weeks, but is then followed by a 12-month probationary period in the test organisation. Among the neighbouring countries around Germany and the reform-oriented countries, training periods of around one year are found in the Netherlands, Sweden and Switzerland; in Switzerland, the training can be completed on a part-time basis parallel to an existing job. Norway requires four to five months of training, comprising a three-week course which is organised centrally, and a combination of theoretical and practical training units in local test organisations.

In the group of GDL countries, the training for driving test examiners lasts several weeks in the Australian states of New South Wales and Queensland; a relatively high number of training hours is demanded in the Canadian province of Ontario.

Country	Group	Training stipulations		Further training	
		Theoretical training	Practical training	Mandatory training	Every ... years
D	WEU	Min. 6 months		X	1
E	WEU	6 weeks		X	1
GB	WEU	4-6 weeks, plus 12 months probationary period		-	-
I	WEU				
F	WEU/NBR	7 months		X	
B	NBR	X	X	-	-
CH	NBR	~ 1 year part-time		X	1
CZ	NBR	X		X	3 ¹
DK	NBR				
L	NBR	X	X	X	5
PL	NBR	152 hours			
A	NBR/REF	X	X	X	4
NL	NBR/REF	~ 1 year		X	1
FIN	REF	Min. 2 weeks			
N	REF	4-5 months, plus 3-week course		-	-
S	REF	12 weeks	45 weeks	X	3
BG	-			X	
CY	-				
EST	-	4 months		X	1
GR	-				
H	-	84 hours	76 hours	X	1
HR	-	X		X	5
IL	-	X			
IRL	-	6 weeks		-	-
IS	-	Min. 3 weeks		X	1
LT	-	~ 2 weeks		X	3
LV	-	~ 3 months		X	1
M	-				
P	-	X		X	3
RO	-	-	-	-	-
RUS	-				
SK	-	-	-		
SLO	-	40 hours	50 hours	X	2/5 ²
TR	-				
AUS/NSW	GDL	1 week	1 week	-	-
AUS/QLD	GDL	4 weeks			
AUS/VIC	GDL				
CDN/NS	GDL				
CDN/ON	GDL	210 hours	180 hours	X	2
CDN/QC	GDL				
NZ	GDL	X	X		
USA/CA	GDL				
USA/FL	GDL				
USA/NC	GDL				

Tab. 29: Qualification and further training for driving test examiners ("X" = applicable, "-" = not applicable; grey cells = no information available; WEU = major West European countries; NBR = neighbouring countries around Germany; GDL = countries with GDL system; REF = reform-oriented countries)

Additional remarks:

¹ The driving test examiner licence is issued initially for five years and thereafter for three years. ² Theoretical further training every two years and practical further training every five years.

In Poland, a specific training curriculum exists and provides for a total of 152 hours of theoretical and practical instruction in the subject areas “Psychology” (20 hours), “Didactics” (20 hours), “Road traffic law” (30 hours), “Vehicle engineering and maintenance” (20 hours), “Safety in road traffic” (16 hours), “Tasks of the examiner” (42 hours) and “Examination practice” (4 hours). In Hungary, the training comprises 84 hours of theoretical instruction (on topics such as legal regulations, driving techniques and test methodology, in each case with reference to the different vehicle classes) and 76 hours of practical training (including participation in actual driving tests).

In Iceland, by contrast, future driving test examiners acquire the corresponding theoretical knowledge primarily by way of independent study. The practical training takes place during a three-week period of field observations in a test centre – the prospective examiner is here accompanied by a supervisor, who is also responsible for evaluation of the training performance. Once the supervisor determines that an adequate level of competence has been attained, an external examiner is called in to conduct a final test. In Estonia, driving test examiners learn how to conduct knowledge tests and driving tests within the framework of a special training programme offered by the test organisation (“Estonian Road Administration”). The main focus, however, is placed on driving tests, as – given the lower demands mentioned previously in connection with the use of a PC in knowledge tests – the responsibility for realisation of the computer-assisted knowledge test can also be delegated to qualified supervisors; it is only necessary for at least one driving test examiner to be present in case of deviations from the regular test procedure (e.g. for an oral knowledge test).

In numerous countries, various professional qualification tests must be passed in the course of or even already in advance of the training. In Luxembourg, candidates for the profession first attend an application interview, and subsequently complete written entry tests (e.g. on the road traffic regulations and vehicle technology). Entry tests are also held in Finland and Israel. In Great Britain and Sweden, it is necessary to pass a special driving test before the actual training commences; further theoretical and practical tests (e.g. knowledge tests, work samples, supervised exercises) are conducted over the course of the training. The training in New Zealand is realised by an already qualified driving test examiner, who makes available the teaching materials, assists and supervises the candidate with regard to the proper realisation of driving licence tests, and determines the appro-

priate time for qualification testing in accordance with the candidate’s training progress.

Further training

As a rule, driving test examiners are required to participate in mandatory further training measures. The frequency of such periodic further training varies between usually every year (e.g. Germany) and every five years (Luxembourg); the scope of further training lies between one and five days per year. More precise data on the scope of further training and the contents of individual measures are only available for a few countries. In Austria, for example, examiners attend further training at least every four years. Five days of further training are prescribed per year in Germany, compared to at least two days per year in Estonia, Iceland, Latvia and the Netherlands. In Luxembourg, it is mandatory to complete five days of further training within a five-year period (i.e. 1 day per year); typically, however, examiners actually attend up to 15 days of further training during this time. In Portugal, one week of further training is prescribed over a period of three years (corresponding to 1.7 days per year) as a prerequisite for renewal of the licence to work as a driving test examiner. In Sweden, renewal of the authorisation to conduct tests is dependent on four days of further training within three years (corresponding to 1.3 days per year). Driving test examiners in Slovenia must attend at least four days of theoretical further training within two years, and five days of practical further training at least every five years (i.e. a total of three days of theoretical and practical training per year). In the Canadian province of Ontario, all driving test examiners must attend a training seminar every two years in order to retain the qualification to conduct tests for all driving licence classes.

3.4.5 Quality assurance measures in test organisations

In addition to its analysis of the state regulations pertaining to qualification and further training for driving test examiners, the present study addresses the topic of quality assurance in driving licence testing by investigating the extent to which the most important forms of testing (knowledge test and driving test) are made the subject of evaluation and further development, and the manner in which this is realised, where appropriate. In the following, examples from a selection of countries serve to illustrate

- whether test data from the knowledge test are evaluated as a basis for improvement of the test items, and which occasions lead to

the overall pool of test items being modified or updated, as well as

- which quality assurance measures are implemented in the context of the driving test, and how frequently are audits performed to monitor the quality of the driving test.

Germany (WEU)

In Germany, the organisations mandated by the state to conduct driving licence tests (the operators of Technical Examination Centres) receive their state approval (formerly “accreditation”, valid for five years) through the corresponding evaluation agency at the Federal Highway Research Institute (BASt), and are later subject to regular external monitoring by auditors from the same office at the BASt. These external audits are performed once per year, with the scope of each audit being dependent on the number of practical driving tests conducted during the previous year. At least one knowledge test and two driving tests are evaluated on each day of the audit in a particular centre. Alongside the regular external monitoring, special external audits may be necessary,

- if the continuous monitoring or approval renewal process reveals serious deviations from the specifications of the approval guidelines,
- if special circumstances have arisen which give rise to serious doubts as to whether the approved operator still meets the quality demands in certain areas, or
- if the operator has himself requested a special audit (e.g. to refute accusations of a third party).

In addition, the test organisation is required to perform internal audits. An appointed quality officer is responsible for realisation of the internal audits; he selects the quality auditors and defines an annual framework for the audits. Various customer surveys are also conducted.

In connection with the introduction of the computer as test medium, a scientific concept for evaluation of the knowledge test (“theoretical driving test”) was developed and implemented (see above). This concept provides for continuous quality assurance in respect of the test items and test sheets (equivalent sets of test items in so-called “parallel tests”). This includes the evaluation of statistical parameters characterising the test items used (level of difficulty, discrimination, etc.), the formulation of corresponding scientific recommendations for the revision of either individual test items or sets of test items in equivalent parallel tests, and scientific support for the development and testing of new test items. Proposals for changes are elaborated

by a group of experts in response to the results of the continuous evaluation, amendments to the legal regulations, or feedback received from authorities, driving instructors, etc. The proposals are then submitted to the responsible state authorities for approval. Quality assurance for the knowledge test is thus a continuous process; the concrete measures and results are documented in annual reports to the responsible authorities at state and national level.

France (WEU/NBR)

In France, overall pass rates in the knowledge test and the difficulty index of the individual test items are the subject of annual appraisals. Changes to the regular test items are effected in response to amendments to the relevant legislation or on the basis of statistical evaluation of the test data. Quality assurance for the driving test consists of internal and external quality audits to review test procedures, and interviews with individual driving test examiners.

Great Britain (WEU)

To safeguard the quality of the knowledge test in Great Britain, the difficulty index of the individual test items is checked at monthly intervals, and the pass rates are analysed with regard to the age and gender of the candidate (population-specific equivalence) and the test location. Before new test items are introduced, they are tested openly within the framework of the regular knowledge test. Quality assurance relating to the driving test takes the form of a quality management system for driving test examiners and includes, for example, analyses of test reports and regular quality audits in the sense of internal evaluations of test realisation.

Belgium (NBR)

In Belgium, the development of new test items is a task of the transport ministry and the Belgian test organisation (“GOCA”); a group of experts is granted responsibility for evaluation of the quality and content validity of the test items. To assess the regularly used test items, statistical checks are performed on test data at six-monthly intervals, including, for example, comparison of the difficulty index of individual items. Test items are withdrawn or replaced on the basis of legislation amendments or statistical conspicuity. With regard to the driving test, test results are subjected to statistical analysis, and observers accompany individual tests. The test procedures for both the knowledge test and the driving test are monitored periodically within the framework of internal evaluations. The auditors are appointed by the test organisation, but the corresponding audit procedures are specified by the state authorities.

Luxembourg (NBR)

In Luxembourg, a working group made up of driving test examiners, driving instructors, experts from the field of traffic legislation, language teachers, and other relevant specialists is entrusted with the development of new test items for the knowledge test – this is the same group of experts which is also responsible for editing of the learner's text book ("Code de la Route Populaire"; see Chapter 3.2.3). Updating of the test items is effected by way of amendments to the corresponding legislation. To uphold the quality of the driving test, a senior driving test examiner accompanies and observes regular driving tests unannounced. Furthermore, the test statistics for individual driving test examiners are evaluated at quarterly intervals.

Czech Republic (NBR)

In the Czech Republic, the transport ministry and the associated traffic research centre assume responsibility for the evaluation and development of test items. The quality of existing and new test items is assessed by a group of experts, which can then recommend either the removal of individual items from the test catalogue or equally the inclusion of new test items. The updating of test items is a continuous process, though specific feedback or complaints may also trigger targeted appraisal. With regard to the driving test, quality assurance measures include monitoring of the examiner's documentation obligations (test reports, etc.) and direct assessments of test realisation.

Netherlands (NBR/REF)

In the Netherlands, the quality of new items for the knowledge test is assessed by testing the use of such items in connection with regular tests. The test item catalogue is updated monthly, with the decision to revise or withdraw test items being based on analysis of their difficulty index. The test organisation ("CBR") also performs annual internal audits to assess the quality of the driving test. In the course of these audits, the test reports and test assessments of the driving test examiners are evaluated and analysed.

Sweden (REF)

In Sweden, new test items are tested in both special trials and regular knowledge tests before introduction. Draft plans and predefined matrixes provide a framework for the development of parallel tests. Traffic experts review the content of revised test items before they proceed to the trials stage, and separate evaluations are conducted by experts from the field of education. The frequency at which test items are updated depends on how long and how often the individual items have been in use. A relatively large proportion of the test items

for the class B knowledge test are replaced monthly or even more frequently. Test items are marked for revision in response to diminished discrimination, changes in the level of difficulty, amendment of the content-related framework (e.g. legal regulations, training curriculum), complaints received or the level of exposure in regular testing (see above). Quality assurance for the driving test involves regular monitoring of actual test realisation, wherein a superior of the driving test examiner accompanies a driving test as observer. In addition, test data are subjected to statistical analyses. Special test audits may be performed to clarify conspicuous statistical findings or complaints.

New South Wales (GDL)

In the Australian state of New South Wales, the "Roads and Traffic Authority" (RTA) is the body responsible for the development of new test items. Such new test items are derived directly from the "Road User's Handbook", which constitutes the fundamental teaching and learning medium for novice drivers (see Chapter 3.2.3). Before new test items are introduced, their content validity is assessed. Statistical methods are furthermore applied to all test items used in the regular knowledge test to evaluate their level of difficulty. The driving test is similarly the subject of both regular and specifically occasioned quality assurance checks, wherein a supervisor accompanies the driving test examiner in the test vehicle. Tasks relating to quality assurance are entrusted to special evaluators from the RTA, who work independently of the driving test examiners.

Ontario (GDL)

In the Canadian province of Ontario, the test items for the knowledge test are evaluated at intervals of several years. Test items may also be revised on the basis of complaints received. With regard to quality assurance for the driving test, it is decreed that the work of the driving test examiners must be monitored at regular intervals by the head or a supervisor of their test centre. These so-called "check rides" are realised as participatory expert observations within the framework of regular tests. At least two such audits must be performed for each driving test examiner in any period of six months. During the "check ride", the supervisor sits in the back seat and assesses both the driving behaviour of the test candidate on a test report and the behaviour of the examiner during the test on the basis of a list of defined criteria. The assessment of the driving test examiner covers the following points:

- Test realisation (preparation, welcome, introductory briefing, vehicle check, verifica-

- tion of the candidate's identity, time management during the test),
- Knowledge and handling of the assessment criteria (correct recording of errors, legibility, accuracy, observance of a proper test route, proper realisation and sequence of the driving tasks),
 - Comparison of the test reports of the driving test examiner and the supervisor after the driving test (assessment of accuracy and consistency),
 - Well-being and safety (checking of the safety-relevant features of the candidate's vehicle, timely instructions to the candidate, consideration of the surrounding traffic situation when giving instructions, recognition and if necessary avoidance of hazards, timely premature termination of the test in case of inadequate driving skills on the part of the candidate, intervention to avoid accidents).

After the test, the examiner and the supervisor meet to discuss the findings and to pinpoint the strengths and weaknesses in the driving test examiner's performance. Audits of the individual test centres are performed by the Ministry of Transportation and assess, for example, the test routes and test reports. At the same time, evaluation criteria are applied to identify test centres with unusually high or low pass rates. If deemed necessary, the ministry may dictate measures aimed at quality improvement (e.g. additional evaluations and staff training, or revision of the test routes).

4 Discussion

The present report has described the systems of novice driver preparation implemented in a selection of different countries, and characterised those systems in further detail by way of their general legal conditions (e.g. minimum age requirements, prerequisites for admission to training) and the forms of teaching/learning and testing used. If, within the framework of a comparative system analysis, the focus is expanded beyond a narrow portrayal of country-specific differences in the design of individual forms of teaching/learning and testing, the various elements of preparation emerge as the essential "modules" of a system of novice driver preparation, the interactions and placement of which provide the basis for different "system architectures". For all the variations in design from country to country, it is the common overarching objective of all systems of novice

driver preparation to equip novice drivers for safe, independent participation in motorised road traffic. One of the key guiding factors for the design and appraisal of such systems is thus fundamental scientific knowledge of the processes of driving competence acquisition. The relevant knowledge is outlined briefly in the following, as the starting point for a concluding system evaluation.

The acquisition of driving competence demands the development and coordination of various partial competences, namely motor abilities relating to operation of the vehicle and cognitive abilities in the sense of information recognition and processing functions, which are indispensable as a basis for orientation and adequate reaction in the complex traffic environment. Even allowing for the fact that the mechanisms of driving competence acquisition have not yet been fully "decoded" and the interactions of the various partial competences can hardly be depicted in their entirety, it can generally be deemed urgently necessary, as a prerequisite for safe participation in road traffic, to be able to combine cognitive and motor abilities in the solving of different traffic situations, and in doing so to automate actions as far as possible (STURZBECHER, 2010). Three stages of skill automation can be distinguished (FITTS & POSNER, 1967; ANDERSON, 1982) and are used here to illustrate the acquisition of the knowledge and abilities necessary for safe participation in road traffic. This acquisition begins with a "cognitive stage", during which instruction and independent study serve to develop internal, primarily declarative knowledge of what must be done when participating in motorised road traffic. This is a prerequisite for the ability to collect and process further relevant information and to assign this information to the corresponding knowledge structures. At the subsequent "associative stage", the acquired stock of knowledge is then corrected systematically and expanded into implicit and finally action knowledge. The concluding "autonomous stage" enables perfection of this action knowledge; the final result is thus increased speed and accuracy in the application of available knowledge, as well as a reduced susceptibility to mistakes and not least reduction of the tied attention and working resources. Estimates of the time required to learn to drive usually assume periods of several years and a total of 10,000, 50,000 or even 100,000 kilometres of driving practice (for an overview: GRATTENTHALER, KRÜGER & SCHOCH, 2009). Analysis of the changing level of accident risk for novice drivers over time shows that a decline in the initially high rate of accident involvement can be expected with increasing driving experience; it is only after around two to three

years, that the rate of accident involvement falls to the level found among experienced drivers (SCHADE, 2001; WELLS & BAUGHAN, 2003). The correlation between driving experience and accident risk is also discussed in scientific literature in conjunction with the so-called “young driver paradox” (WARREN & SIMPSON, 1976), which refers to the fact that safe driving skills are acquired first and foremost through actual driving, but at the same time the initial phase of such experience-building – not least as a result of the still lacking safe driving skills – is necessarily accompanied by the highest exposure risk.

In connection with the increased accident risk for novice drivers during the initial phase of solo driving, two components are generally discussed as underlying causes, namely “novice risk” and “youth risk”. The elements of risk termed “novice risk” refer above all to high cognitive and psychomotor demands associated with the mastering of particular driving tasks; for a novice driver, the underlying processes have not yet become automated routine, which leads to an increased number of driving errors and thus accidents. The sources of risk summarised under “youth risk” are to be seen in youth-typical dispositions, such as an increased readiness to take risks, a pronounced craving for sensation or self-overestimation, and consequently apply in particular to the group of young novice drivers. On the basis of surveys conducted among novice drivers in Britain, MAYCOCK et al. (1991) were able to supply empirical proof for the relative influences of the novice risk attributable to a lack of driving experience (decrease in accident risk with increasing experience) and the youth risk attributable to age-related factors (lower initial risk with increasing age). Both risk factors contribute to the reduction of accident risk, though the declining novice risk accounts for the significantly greater contribution. After one year of driving experience, for example, the accident risk for novice drivers was lower by approximately 30 per cent, whereas one year of age difference brought only a six per cent reduction in accident risk. McKNIGHT and McKNIGHT (2003) reached a similar conclusion after analysing reports on accidents involving young drivers between 16 and 19 years of age, namely that novice driver accidents are attributable above all to novice-specific competence deficits and only secondly to youth-typical risk factors.

With regard to the formulation of design requirements for systems of novice driver preparation, it can be taken that a period of several years must be planned and organised accordingly to enable the acquisition of fully developed driving competence. Given the relatively short period of prepara-

tion prior to the granting of a driving licence, it cannot be assumed that the level of driving competence desirable from the perspective of road safety has already been attained during the initial phase of solo driving. This initial phase of solo driving is thus at the same time a period of intensive practical learning. Compared to the preceding supervised learning phase, however, this continued learning without the direct supervision of a driving instructor or lay accompanist takes place under conditions of significantly higher risk. Effective reduction of the greater risk exposure can be achieved in one of two ways: Either by broadening the scope of experience gained before the commencement of solo driving – this expands the competence prerequisites available to overcome the risks – or by regulating the conditions of risk exposure – this adapts the demands placed on the novice driver to his still inadequately developed driving ability.

On the basis of the comparative descriptions of the systems implemented in individual countries in the previous chapters, and taking into account the aforementioned general knowledge relating to driving competence acquisition, it is possible to address the three central research questions posed in Chapter 1. Subsequently, discussion can be concentrated on the demands to be met by a functional system of novice driver preparation, and on the potential for an optimisation of novice driver preparation in Germany.

The first central question was: “Can particular ‘system types’ or models of novice driver preparation be distinguished on the basis of the forms of teaching/learning and testing in use in the different countries and by way of their specific arrangement within the process of novice driver preparation?” As a starting point for the answer to this question, it must be noted that the systems of novice driver preparation already specify a legal framework for the granting of driving licences, and that the essential conditions for the acquisition of knowledge and skills by novice drivers (e.g. the persons involved, opportunities for driving practice) are thus predefined. The most interesting of these framework conditions for a categorisation of different system types would appear to be those which are related to the previously outlined mechanisms and time-scales of driving competence acquisition, and to the commencement of solo driving as the initial focus of risk exposure in a driving career. This means, in particular, (1) the diversity and scope of opportunities for practical driving experience during the supervised learning phase, (2) the design of the autonomous learning phase as a protective teaching/learning setting and as a phase of contin-

ued learning, and (3) the durations of the supervised and autonomous learning phases, as well as the overall period through to the granting of a driving licence free of all special protective regulations. In the following, the characteristic design forms of systems of novice driver preparation are to be described on the basis of these dimensions, with examples from individual countries serving as illustration.

(1) With regard to the availability of teaching/learning forms and the possibilities to acquire practical driving experience in preparation for solo driving, the present report considered both those countries in which formal practical driving instruction is the only opportunity for participation in real traffic, and others in which lay persons are also permitted to offer practical driving instruction or else to act as an accompanist, whereby the acquisition of driving experience is spread over a longer period. The available scope and the range of possibilities for practice in preparation for solo driving thus differ fundamentally from one country to another. Where it is not permissible to involve lay persons in preparation alongside professional driving instructors, the commercial driving schools hold a training monopoly within the system concerned. Consequently, due to the cost implications, the likelihood of a particularly broad scope of practice during the supervised learning phase is drastically reduced. In such models, high demands are placed on efficient organisation of the available learning and training time during the supervised learning phase, while the opportunities to enhance driving competence through extensive driving practice are shifted into the initial phase of solo driving. This system type, characterised by the legally prescribed limitation to driving school training as an exclusive source of preparatory driving practice, is found in Denmark, the Czech Republic and Poland among the neighbouring countries around Germany and in the Netherlands among the reform-oriented countries, as well as in Bulgaria, Greece, Hungary, Croatia, Portugal, Romania and Slovakia. In several other countries, including Germany, training exclusively in a commercial driving school is merely one of the training models which novice drivers are able to choose, alongside alternatives which offer additional opportunities for learning by way of accompanied driving.

In the majority of the countries covered in the present project, both professional driving instructors and lay trainers participate in practical driving instruction, albeit with significant

variation in the manner in which the ensuing possibilities for informal, private instruction are combined with formal training offers. It is basically possible to distinguish three forms of combination:

(1) The first form of combination functions with a minimum of official intervention, i.e. it is left to the individual discretion of the novice driver whether to attend a driving school, to learn together with an eligible lay person (e.g. a parent), or to combine formal training components with the possibilities for informal, private practice. In these countries, only a minimal scope of formal driver training is prescribed, if at all. Such "liberal models" are to be found, for example, in Great Britain in the group of major West European countries, and in Switzerland and Sweden in the groups of neighbouring countries around Germany and reform-oriented countries. Further countries which can be assigned to this system type are Ireland, Malta and Cyprus. (2) In the second category, the formal driver training components and the possibilities for informal practical driving instruction remain conceptually separate elements of preparation. It is here first necessary to complete a full programme of driving school training and to pass a driving test, before subsequently becoming entitled to drive under the supervision of an experienced lay person. Examples of such "consecutive models" are the "BF17" model in Germany and the system of novice driver preparation in Israel. (3) The third form of combination provides for a period of formal driving school training at the beginning of the learning process, followed by a phase of accompanied driving. During this accompanied driving phase, the novice driver must attend further units of formal training with a professional driving instructor, before finally taking the driving test. Examples of such "integrative models" are found in the French system of novice driver preparation ("AAC" model) among the major West European countries, as well as in Luxembourg ("AC" model), Austria ("L17" model") and Norway among the neighbouring countries around Germany and reform-oriented countries.

In the context of the aforementioned system types and training models, the GDL countries are something of a special case. The particular feature of these systems is that accompanied driving, as an informal teaching/learning form is here the decisive element of preparation serving to develop practical driving experience, whereas formal driving school training plays

only a complementary role. Nevertheless, all three variations for the combination of accompanied driving and formal training offers are also to be found in the GDL systems: In New Zealand and in the Australian states of New South Wales, Victoria and Queensland, for example, no formal driver training is prescribed – the novice driver is free to choose his preferred form of preparation, in similar fashion to the “liberal models” in Europe. In the US states, on the other hand, the GDL systems equate to “consecutive models” by requiring the completion of formal training elements before commencing accompanied driving. In the Canadian provinces of Nova Scotia, Ontario and Québec, finally, the system includes modules of formal training, as either mandatory or optional elements, to be completing during the course of the accompanied phase – comparable to the “integrative models”.

- (2) The first phase of solo driving was above described as a phase of continued learning, during which the acquisition of driving experience is reflected in gradual reduction of the initially high accident risk. Especially at the beginning of solo driving, there is thus a risk that the novice driver could be exposed to traffic situations which he is unable to master. In most systems of novice driver preparation, therefore, the first phase of solo driving after obtaining a driving licence is designed as a special learning setting, in the sense of an “autonomous learning phase”, with a focus placed on the acquisition of practical driving experience. Generally speaking, the protective regulations applicable to solo driving during this phase can be divided into two basic types of precautionary measure: On the one hand, novice drivers may be placed under a general preventive threat of sanctions, which is then escalated to specific preventive sanctions if relevant traffic offences are committed. On the other hand, novice drivers may be subject to immediate driving and mobility restrictions, which are intended to prevent their exposure to certain excessive demand situations.

Basing the differentiation of particular system types on a descriptive dimension which signifies the extent to which the autonomous learning phase is designed as a special learning setting and as a phase of continued learning, it is revealed that there are only a few countries in which the initial phase of solo driving is not subject to special regulations of one form or another (e.g. Bulgaria, Czech Republic). By contrast, especially wide-ranging provisions for

the initial phase of solo driving are a characteristic feature of many GDL systems and generally combine both forms of protective regulation, namely the threat of sanctions and mobility restrictions. The threatened sanctions frequently involve driving bans, the requirement to attend corresponding advanced training courses, and last but not least extension of the period for which the protective regulations remain in force during the autonomous learning phase, in other words temporary refusal of a full and unrestricted driving licence. Common driving restrictions in the GDL systems, alongside a zero-alcohol rule, include the exclusion of night-time driving and special rules limiting the number of passengers. In certain GDL systems, furthermore, the autonomous learning phase is divided into two stages, with the transition to the second stage being accompanied by the lifting of certain restrictions and thus an extension of the novice driver's mobility. In some cases, further forms of testing are placed between the two stages and are thus able to realise a control function in respect of the first months of solo driving (e.g. in New South Wales and Queensland).

The majority of European systems of novice driver preparation can be positioned between these two extremes of a waiving of all protective regulations on the one hand, and a graduated autonomous learning phase subject to a diversity of threatened sanctions and mobility restrictions on the other. In many cases, it can be noted that the focus of special provisions for the autonomous learning phase is placed on preventive threats of sanctions, without at the same time excluding specific risk exposure for the novice driver by way of driving restrictions (e.g. Great Britain, Denmark, Poland, Finland, Norway, Sweden). As in the GDL systems, the threatened sanctions are frequently driving bans and mandatory advanced training courses. In some European countries, advanced training courses are also prescribed during the autonomous learning phase in the sense of a mandatory second phase of driver training for all novice drivers (e.g. in Austria, Luxembourg, Finland and Switzerland). It can nevertheless be established that the instrument of driving restrictions is not exclusive to the overseas GDL systems; such restrictions are also used to varying extents in a number of European countries. Alongside the general preventive threat of sanctions, the concrete driving restrictions applicable here include, above all, either zero-alcohol rules or at least

lower alcohol limits for novice drivers (e.g. in Germany, France, Luxembourg, Austria and the Netherlands), special marking of the novice driver's vehicle (e.g. in Spain, France, Switzerland, Estonia and Lithuania) and speed restrictions for novice drivers (e.g. in Spain, Italy and France).

While precisely combinations of different protective measures and graduated realisation of the autonomous learning phase are design aspects characteristic for many GDL systems, it can be recognised overall that some European systems also implement extensive provisions to regulate the autonomous learning phase, and thus achieve a certain similarity to the overseas GDL systems. Likewise, it must be pointed out that it is also possible to differentiate GDL systems with a more or less extensively regulated autonomous learning phase.

- (3) The overall timeframe for driving competence acquisition within a system of novice driver preparation is defined by the cumulated durations of the supervised learning phase and the autonomous learning phase. The extent of safety-relevant driving experience attainable during the supervised learning phase is determined firstly by the framework conditions of the system concerned (e.g. minimum age requirements, minimum training periods), but is at the same time also dependent on the availability and the costs of the teaching/learning forms which enable practical driving practice.

With regard to the timeframe and the attainable scope of driving practice, the systems can be distinguished according to whether they provide for a "long" or "short" form of preparation. In those countries in which formal driving school training is the only opportunity to gain practical driving experience, the preparation for solo driving is inevitably limited to a short period or a lesser scope due to the cost implications. The minimum duration and scope of practice are here dictated, on the one hand, by the specification of a required number of driving lessons; at the same time, it is the task of the driving instructor, together with the novice driver, to decide whether the necessary confrontation with different traffic demands has been accomplished (e.g. variation of the driving experience between urban and rural situations), whether the learner has attained an adequate level of driving skills, or whether further driving lessons are expedient. Such short forms of preparation are found in the aforementioned countries with exclusively formal

driving school training (e.g. Denmark, Czech Republic, Poland). In other countries, by contrast, a long form of preparation is either enabled by way of corresponding framework conditions or even prescribed as a mandatory requirement. In this context, mention must be made firstly of the GDL countries, in which minimum periods are specified for the supervised learning phase (e.g. 12 months in Queensland, Québec, North Carolina), often in combination with a minimum scope of driving experience during this period (e.g. 120 hours in Victoria and in New South Wales, 50 hours in Florida and in California). At the same time, framework conditions which permit or explicitly promote a long form of preparation for solo driving also apply in many European countries. Where differences are found, they refer to the extent to which it is mandatory to make use of individual elements of preparation. There are some European systems, for example, in which the duration of the supervised learning phase and a minimum scope of practical driving experience – similarly to the specifications of the aforementioned GDL systems – are binding stipulations (e.g. the "AAC" model in France or the "L17" model in Austria). Under those system types where a long form of preparation is merely permitted as an option, use of this option is generally regulated by specifying a minimum age for the earliest possible commencement of practical driving instruction and a higher minimum age for the transition to solo driving. Together, these specifications define a certain "window" of several months for use of the opportunities for additional driving experience (e.g. up to 12 months for the consecutive "BF17" model in Germany and the integrative model in Iceland).

If the duration of the autonomous learning phase is also taken into account, alongside the duration of the supervised learning phase, it can be seen that various systems define an overall timeframe stretching to several years; this timeframe is equally binding for all novice drivers and serves to support their acquisition of driving competence through the stipulation of certain further elements of preparation. In the Australian GDL systems in the states of Queensland, New South Wales and Victoria, with a supervised learning phase of at least 12 months and a subsequent graduated autonomous learning phase of at least 36 months (in New South Wales and Queensland) or 48 months (in Victoria), the overall timeframe is relatively long at a minimum of four or five

years; it is also conceivable for a novice driver to spend a longer time at individual stages of the graduated system. Among the European systems of novice driver preparation, there are only a few systems which specify similarly long durations. In France, for example, a total duration of three years applies for novice drivers who choose the “AAC” model, with its supervised learning phase of 12 months and a subsequent autonomous learning phase of 24 months.

On the basis of the chosen descriptive dimensions “Opportunities for practice during the supervised learning phase”, “Design of the autonomous learning phase as a learning setting” and “Timeframe for the supervised and autonomous learning phases”), it can be determined that the systems differ in the extent to which – within a certain (binding) timeframe – they establish learning environments with extensive learning opportunities and at the same time implement precautions to minimise risk exposure during learning. Some systems permit driving practice during the supervised learning phase exclusively within the framework of driving school training, whereas others can be characterised by their combination of formal training offers with possibilities for informal preparation, and thus offer or even expect a much broader scope of supervised driving practice. Likewise with regard to realisation of the autonomous learning phase as a setting for continued learning, the different systems implement widely varying designs for the initial phase of solo driving, ranging from the waiving of all protective regulations to comprehensive, combined – and in some cases also graduated – precautionary measures. In respect of the timeframe for driving competence acquisition, a number of countries define a very generous framework extending over a period of several years; in the GDL systems, in particular, the overall timeframe for transition through the process of novice driver preparation begins with a minimum duration of preparatory training for solo driving, followed by a relatively long minimum period of solo driving under – partially graduated – protective regulations.

The second central question to be answered by the research was: “Are the different arrangements of forms of teaching/learning and testing founded on teaching and learning theory principles, especially with regard to the function and benefit of the particular arrangement for the acquisition of driving and traffic competence?” (see Chapter 1). When addressing this question, it is to be assumed that the different systems of novice driver preparation have developed historically and are thus characterised by country-specific legal, social, cultural, eco-

nomical and infrastructural circumstances. Two basic trends can be identified in the scientific discussion on necessary further development of the individual systems, namely recommendations for expansion of educationally oriented formal driving school training on the one hand, and the promotion of possibilities for additional informal practical experience under protective regulations on the other hand (LEUTNER et al., 2009). With the development of the GADGET matrix (CHRIST et al., 1999), for example, the objectives for formal driving school training were reformulated in the sense that training should seek to strengthen above all appropriate attitudes to road safety, rather than merely conveying skills relating to vehicle operation, as a means to improve the practical effectiveness of novice driver preparation. To achieve the goal of a maximum positive impact on safety, it was deemed necessary to pay greater attention to motives and attitudes in driver training, and to equip novice drivers with capabilities for self-reflection and realistic assessment of their own driving ability. By contrast, the development of GDL systems as a protective framework for longer-term and informal driving experience acquisition followed on from scientific analyses which found no mentionable evidence of a contribution to novice driver safety from educationally oriented and attitude-focussed formal driver training (MAYHEW & SIMPSON, 1996 und 2002; CHRISTIE, 2001). Although the two approaches to further development of the systems are by no means mutually exclusive and could indeed be taken into account jointly in system design, the focus pursued from the perspective of the underlying teaching and learning theory principles has nevertheless produced a number of very different system architectures.

In the overseas GDL systems, the system architecture aims to reduce novice driver risk at the commencement of solo driving by way of graduated access to full driver rights, a high minimum extent of practice during the supervised learning phase and specific risk-reducing driving restrictions during the autonomous learning phase. To avoid situations in which novice drivers typically face excessive demands, the entitlements of an unrestricted driving licence are granted step by step in line with increasing competence acquisition. The process of learning to drive usually begins with a period of several months during which driving is only permitted under the supervision of an experienced accompanist (“learner stage”). At the next stage, which again lasts several months, solo driving is allowed, but remains subject to certain protective restrictions (“intermediate stage”). At the

end of the process, a driving licence is finally granted without special conditions, provided no traffic offences have been committed in the meantime ("full license stage"). While such graduated access is characteristic for all GDL systems, there are still significant differences in the concrete design of the individual stages in some respects. This refers, for example, to the prescribed minimum period of practical driving experience before the commencement of solo driving (e.g. 6 months or 12 months), the type and number of tests to be passed (e.g. a knowledge test as prerequisite for admission to the "learner stage", a driving test as prerequisite for transition to the "intermediate stage", further tests before the granting of a full licence), specifications relating to the minimum number of hours of driving (e.g. 50 hours or 120 hours), the types of driving restrictions imposed (e.g. exclusion of night-time driving, passenger restrictions), and also the nature of the possibilities for combination with formal training offers (e.g. mandatory or optional driving school training). The GDL systems are thus based on a theoretical teaching/learning concept in which opportunities for extensive driving practice by way of informal practical instruction in a low-risk situation constitute the decisive design feature, whereas formal driver training plays only a secondary or supplementary role in most cases. The design of the protective framework for the period of informal practical learning (e.g. exclusion of night-time driving, passenger restrictions) is primarily a reaction to empirical analyses of novice-typical accident causes and risk-enhancing context factors. Common to all these systems, however, is that they take into account the initially outlined mechanisms of driving competence acquisition, alongside the results of empirical research addressing novice-typical accident causes and novice-specific competence deficits.

The approach in a number of European countries, by contrast, seeks to reduce the high accident risk for novice drivers by strengthening the overall system of formal training, and in particular by realising a "second phase" of training after the commencement of solo driving. One of the lines of argument used to justify the necessity of such a second phase of driver training claims that protective regulations geared purely to behavioural prevention (e.g. zero-alcohol rule, demerit points) are insufficient, and that, especially in the early phase of solo driving, novice drivers must be offered continued pedagogical support and attention, not least because the bad example of other drivers – in the sense of "negative" social learning – would otherwise erode the safe driving behaviour learned dur-

ing formal driver training. A second phase of driver training is seen as the suitable framework for measures to promote and stabilise risk-reducing attitudes, to encourage reflection on personal experiences during the initial phase of solo driving, and to enable the novice driver to assess his own driving abilities realistically. From the perspective of teaching/learning theory, these educationally formulated models follow a similar approach to the hierarchical behaviour models which provide a basis for the GDE matrix (or GADGET matrix). Under these models, relevant aspects of driving behaviour are operationalised not only on the levels of "Vehicle manoeuvring" (first level) and "Mastering of traffic situations" (second level), but also – with greater significance for driving safety – on the levels of "Goals and context of driving" (third level) and the driver's personal "Goals for life" (fourth level) (cf. KESKINEN, 1996; HATAKKA, 2000).

As far as the impact of these different teaching/learning concepts is concerned, numerous evaluation studies conducted in the USA, Canada, Australia and New Zealand show that the introduction of the GDL systems in these countries resulted in a significant decline in the number of accidents involving novice drivers (for an overview: MAYHEW, SIMPSON & SINGHAL, 2005). Given the fact that the individual GDL systems differ in the ultimate details of their design, these positive findings indicate a safety gain which can be attributed, not least, to the fundamental system architecture and its furthering of driving competence acquisition. This system architecture – as already described earlier – is characterised by a graduated process of driving experience acquisition over a relatively long overall timeframe, flanked by a diversity of protective regulations. Recommendations to improve the positive effects of GDL systems propose empirical studies to identify and reinforce above all those system components which have been found to possess the greatest safety relevance (e.g. minimum scope of experience, exclusion of night-time driving, passenger restrictions). With regard to the safety impact of a second phase of driver training after the commencement of solo driving, the experiences reported from different countries are somewhat contradictory. While the two-phase training model in Austria is said to have resulted in a significant reduction in the involvement of young novice drivers in accidents with injury to persons (GATSCHA et al., 2008), the evaluation results for comparable advanced training courses in Germany ("Jugend fährt sicher", voluntary further training seminars for holders of probationary driving licences) showed that the intended – and, given the pedagogical

possibilities of driving school training, probably over-ambitious – objective, namely the modification of attitudes detrimental to road safety, was not achieved (SCHULZ, HENNING & CHASELON, 1995; RUDINGER & SINDERN, 2009; WILLMESLENZ, GROSSMANN & PRÜCHER, 2009). Methodically sound studies from international research have similarly failed to produce evidence for a safety gain from advanced training courses for novice drivers (KER, ROBERTS, COLLIER, BEYER, BUNN & FROST, 2005; MAYHEW & SIMPSON, 1996; ELVIK & VAA, 2004).

To be able to answer the third central question for the present research project – “Which common lines of development and convergence trends can be identified in the different systems of novice driver preparation?” – the selection of countries to be analysed was extended to include the group of GDL countries. After all, the empirical findings on the safety gains of graduated licensing systems in Australia/Oceania and North America have also contributed to a discussion of the effectiveness of individual measures and their possible incorporation into other systems in many European countries. At the same time, the extent to which the mandatory or optional integration of formal driver training offers could further improve the graduated licensing system is likewise a subject of study and discussion in the GDL countries. Against this background, it is to be considered whether and, if so, to which extent the systems analysed in the present report display common developments or convergence in their system architectures and the elements of preparation used, and furthermore whether such common ground can be determined between the European system models with their traditionally strong focus on formal driving school training on the one hand, and the GDL systems on the other hand.

Viewed overall, it can be seen that specific preparation for solo driving (“supervised learning phase”) and particular provisions for the subsequent high-risk phase (“autonomous learning phase”) are incorporated as stages along the road to granting of a driving licence free of special regulations in most systems of novice driver preparation in the countries considered by the present report. One significant difference between the GDL systems and the systems implemented in Europe is the much higher degree of obligation with regard to the duration of the two phases and the corresponding conditions for the acquisition of practical driving experience in the GDL countries. This refers to the specification of minimum periods and required scopes of actual practice to be gained by way of accompanied driving during the supervised learn-

ing phase, and a relatively long period of driving subject to concrete driving and mobility restrictions during the autonomous learning phase. At least as far as the introduction of such protective driving and mobility restrictions is concerned, it can be noted that a number of European countries are moving in the direction of the GDL standards.

As a possibility for practice before the commencement of solo driving, informal practical instruction either with a lay trainer or within the framework of accompanied driving is an important measure to guarantee acquisition of appropriately extensive driving experience before the transition to independent participation in road traffic. Such informal practical instruction is an elementary component of the GDL systems. A similar opportunity for longer-term preparation is also available to novice drivers in the majority of European countries; in many cases, however, it is neither prescribed nor specifically promoted by way of corresponding framework conditions. There are nevertheless some European countries whose systems – in a similar manner to the GDL systems – attach binding importance to the use of accompanied driving (e.g. France, Austria). With regard to protective regulations during the initial phase of solo driving, it is to be noted that the combination of concrete driving restrictions and a general preventive threat of sanctions, in particular, are found primarily in the GDL countries. In most European countries, by contrast, the preventive focus is placed above all on threatened sanctions. Convergence is revealed merely in respect of individual measures. Zero-alcohol rules or at least lower alcohol limits, for example, are a typical risk-reducing measure for the early period of solo driving in all GDL systems, but are in the meantime also finding their way into many European systems of novice driver preparation.

In a few European countries, the longer-term acquisition of practical driving experience during the supervised learning phase is enabled by way of “integrative models” combining mandatory formal driver training with informal practical experience in the form of accompanied driving (e.g. France, Austria, Luxembourg). The formal driver training here serves to convey fundamental driving competence at the beginning of the learning process, before more extensive driving experience is acquired during the subsequent accompanied phase; further formal training elements are also stipulated during the accompanied phase to a lesser degree. A similar combination in the sense of an integrative model was also introduced recently in the Canadian province of Ontario, which originally implemented a pure GDL system: The BDE (“Beginner

Driver Education”) curriculum there represents a binding basis for all novice drivers and supplements accompanied driving with regular formal training modules, in which certain relevant skills are to be acquired under pedagogical supervision. The content design of the BDE curriculum makes explicit reference to the GDE matrix.

One common line of development which is emerging across both country and system boundaries is not least the increasing use of computers in the context of novice driver preparation. The computer is already the predominant test medium for the realisation of knowledge tests; in some cases, the instruction formats are already making use of dynamic driving scenarios. Tests to assess traffic-related awareness, hazard anticipation and hazard avoidance (e.g. traffic perception tests) are a further coming domain for computer-assisted test systems. The forms of use presented in the report indicate furthermore that, as a technical medium serving novice driver preparation in general, the computer will in future provide an important basis for the development of innovative teaching/learning forms (e.g. recording and reviewing of driving data during practical driving instruction) in connection with both driver training and independent learning.

The next question to be answered concerns the features which a functional system of novice driver preparation should possess. In terms of its design, as mentioned at the outset, a functional system of novice driver preparation should be based on the initially described conditions and mechanisms of driving competence acquisition: In other words, a period of several years must be assumed for the process of learning to drive, over the course of which the acquisition of knowledge and skills runs hand in hand with increasing integration and automation of the relevant information processing and action sequences. An essential factor in driving competence acquisition is at the same time the opportunity for extensive practical experience, i.e. the principle of “learning to drive by driving”, which, from the perspective of road safety, manifests the so-called “young driver paradox”. For the design of a functional system of novice driver preparation, the key to resolution of this contradiction between the necessity of extensive driving practice and the inevitably associated accident risk lies in determination of the optimum “dosage” (by way of appropriately intensive protective regulations) and in meaningful temporal arrangement of the demands to be mastered.

The timeframe is thus a significant feature for system design, and defines the setting for the overall process of learning to drive, both prior to and after

the commencement of solo driving. To reduce the high accident risk upon transition to the first phase of solo driving (“initial peak of endangerment”), it seems logical to provide for an extended supervised learning phase (e.g. by specifying minimum age requirements or minimum periods), to enable broader driving experience to be gained already at an early stage. In the scientific literature, periods of at least 12 months are recommended (e.g. MAYHEW, SIMPSON & SINGHAL, 2005). It must be remembered, however, that it is not the prescribed duration which is primarily decisive for the intensity of preparation, but rather the actual amount of driving done and the diversity of traffic demand situations encountered (e.g. urban and rural traffic environments) – the logging of actual driving practice, whether electronically or in analogue form, would here be more meaningful, as it permits conclusions to be drawn regarding attainment of the prescribed or recommended scopes of driving practice. The initially high level of endangerment at the commencement of solo driving, which can be attributed chiefly to the factor of “novice risk”, requires that the system of novice driver preparation stipulate also a reasonable timeframe for the phase of autonomous learning, during which solo driving can be characterised as the realisation of continued learning. Scientific studies conducted in this direction suggest durations of two or three years (SENSERRICK & WHELAN, 2003).

Equally important is the provision of ample occasions for learning and practice over the whole timeframe of the system: To enable acquisition of the broadest possible scope of competence in preparation for solo driving, a diversity of professional, formal training offers and informal practice opportunities are made available and, in some cases, combined. The central element of preparation for the acquisition of driving expertise – alongside fundamental formal training components – is here accompanied driving under the supervision of a non-professional accompanist. The essential contribution of driving school training is to ensure that a certain minimum scope of defined, safety-relevant training content is conveyed to all novice drivers, and that they are enabled to master a scientifically founded selection of qualitatively varied and demand-specific driving tasks both safely and reliably. The overall process to convey such knowledge and skills, as well as safety-oriented attitudes, should be geared to an overarching curriculum, in which the learning objectives to be achieved and the arrangement of the individual training contents are explained from the perspective of teaching and learning theory, and the paths

to competence acquisition (teaching/learning media, teaching/learning methods, professional and non-professional instruction, scopes of practice) are described accordingly. The systematic integration of formal and informal forms of teaching/learning and testing into such a curriculum can contribute to more effective use of the opportunities for learning and practice. The professional driving instructor is then able to concentrate above all on pedagogically demanding instruction and coaching tasks, determining learning progress and identifying remaining needs on the basis of learner assessments, while practice and repetition can be placed in the hands of a non-professional supervisor. When addressing the use of learning possibilities, it must also be taken into account that, in today's "knowledge society", self-controlled learning and the use of digital media are considered prerequisite competences (MANDL & KRAUSE, 2001). The independent acquisition of knowledge and skills with the aid of suitable (digital) teaching/learning media should thus also be viewed as an important resource for comprehensive driving competence acquisition in the context of novice driver preparation – subject to the learning dispositions of the individual novice driver.

The initial period of solo driving represents a phase of continued learning and ever broader practical driving experience; as driving is now no longer supervised by a professional driving instructor or non-professional accompanist, however, it is at the same time characterised by a significantly increased accident risk. To reduce the initial risks of solo driving, it seems expedient to prevent the exposure of novice drivers to certain accident-relevant situations by way of protective regulations. As the risk declines with increasing driving experience, stricter precautions in the form of mobility restrictions are especially necessary at the commencement of solo driving. The successive lifting of restrictions as driving experience is expanded, on condition of a correspondingly proven driving record, can serve as an important incentive for safety-oriented driving behaviour by novice drivers (FOSS & GOODWIN, 2003). Concrete design recommendations for the phase of autonomous learning under protective regulations propose measures such as the exclusion of night-time driving, restrictions on the age and number of passengers, zero-alcohol rules and special markings to identify the vehicles of novice drivers (MAYHEW et al., 2005; SENSERRICK et al., 2003).

Tests are important elements in the system of novice driver preparation and, by way of their selection and control functions, contribute significantly to the overall safety gain of a system architecture. The

use of different forms of testing (knowledge test, traffic perception test, driving tests), and their meaningful arrangement according to teaching and learning theory principles, must thus be considered a further important feature of a functional system of novice driver preparation. The increasing differentiation revealed in the present report, with individual tests addressing specific test demands, enables the assessment of selected partial competences during actual learning – with corresponding theoretical justification – and overall the testing of a wide spectrum of traffic-related knowledge and abilities. With regard to the temporal arrangement of tests, it is to be taken into account that certain abilities are developed at an earlier stage of driving competence acquisition than others. The acquisition of action competence in general, and driving competence in particular, begins with the systematic development of flexible, connectable and transferable knowledge of the subject matter underlying the particular action, which in the present case means the circumstances of motorised road traffic (first step). On this basis, it is then necessary to acquire the ability to apply the knowledge concerned effectively and in a manner appropriate to an action situation, i.e. in the contexts of diverse traffic situations (second step). The final outcome of this process is the accumulation of a differentiated repertoire of problem- and situation-related action patterns, from which the immediately appropriate (driving) behaviour can be called up (third step). In the light of this three-step process of competence or expertise acquisition (cf. ANDERSON, 2001; GREENO, COLLINS & RESNICK, 1996; GRUBER & MANDL, 1996), traditional knowledge tests, which address above all declarative knowledge and thus equate to the first step, can be placed at a relatively early stage of the process of novice driver preparation, and indeed must be arranged so, if they are to provide meaningful motivation and support to knowledge acquisition within this process. The greater operationalisation of implicit or procedural knowledge in traffic perception tests or the driving tasks to be mastered in real traffic as elements of the driving test, on the other hand, suggests placement of such forms of testing at a later point in the course of novice driver preparation to accommodate the correspondingly longer learning processes (second and third steps).

In a functional system of novice driver preparation, the selection and control functions of testing can be used in various ways to define the system design and to mark important intermediate goals for the process of obtaining a driving licence. Where, as in some GDL systems, the passing of a knowl-

edge test is a prerequisite for the issuing of a learner driving licence, it effectively assumes the function of an “entry test” and necessitates the prior acquisition of knowledge by way of independent theory learning. A driving test which is arranged after a phase of accompanied driving, furthermore, is able to motivate novice drivers to spend more hours gaining practical driving experience before the commencement of solo driving. Provisions for further tests after the commencement of solo driving – whether in the form of a traffic perception test or a second driving test – also support targeted further learning, precisely during the initial high-risk phase of driving without supervision (SENSERRICK et al., 2003). And the placement of tests at the end of the process of novice driver preparation could similarly fulfil selection and control functions, when test performance leads either to release from the system or to a prescribed extension of the autonomous learning phase – possibly flanked by further diagnostically founded, improvement-oriented measures (MAYHEW et al., 2005).

As a final overarching feature of system design, it is appropriate to take into account the evaluation and optimisation of the overall system. Significant benchmarks in this respect are provided by empirical findings relating to the safety impact of the system and the functionality of individual elements of preparation. It can be expected of a functional system of novice driver preparation that the different elements of preparation complement each other in meaningful fashion in their interactions. To this end, it is necessary to conduct studies which – for example by questioning novice drivers on their use of certain measures – determine the extent to which the prescribed formal structures of the system also promote the intended activity structures, i.e. the desired driving competence acquisition, on the part of novice drivers.

In conclusion, an answer is to be sought to the question of optimisation perspectives which can be derived for the system of novice driver preparation in Germany. The German system of novice driver preparation has undergone significant changes over the past 15 years. Important development steps worthy of particular mention include tightening of the regulations governing the probationary period for novice drivers, the work on optimisation of the theoretical and practical driving licence tests which began in 1999, and the introduction of an absolute zero-alcohol rule for novice drivers in 2007. Last but not least, the system of novice driver preparation in Germany was expanded to incorporate a further teaching/learning form of evaluated and proven safety relevance with the

testing of the training model “Accompanied driving from age 17” (“BF17”) from 2004 and its permanent anchoring in the applicable legislation on driver licensing in 2011. Starting out from the current status of the system of novice driver preparation in Germany, the following pages now outline a few selected optimisation perspectives for the system and its constituent forms of preparation, as derived from the aforementioned demands to be met by a functional system of novice driver preparation, and as prompted by the existing variety of designs and forms of teaching/learning and testing revealed by the present report.

(1) Development of a comprehensive framework concept for novice driver preparation

Many different social actors are involved in the preparation of novice drivers in Germany, including – alongside the novice drivers themselves – traffic policy makers, legislators, the driver licensing authorities, driving schools, the Technical Examination Centres, road safety associations, schools and, in the meantime to an increasing extent, also non-professional experienced accompanists (e.g. the parent of the novice driver). The interactions of these different contributions, the already implemented changes to certain details, and the future further development of individual components of the system make it necessary to give greater consideration to the system of novice driver preparation in its entirety, and to pursue continuous evaluation of the functionality and integration of the individual system components in order to identify possibilities for optimisation. To this end, the system components must be arranged accordingly within an overarching framework concept, with description of their specific functions and the desired interactions founded on teaching and learning theory. Such a framework concept is firstly a significant source of orientation for the novice driver, as learner, and for the various other persons and institutions involved within the system; at the same time, it must be seen as an important starting point for quality assurance evaluations and measures through which the safety impact of the system and its components can be verified and improved.

(2) Strengthening of independent (theory) learning

Independent theory learning is an inexpensive teaching and learning form which permits the novice driver to acquire important basic knowledge outside of classes with a professional instructor and at a learning pace determined by the novice driver himself. In most countries, this teaching/learning form consists above all in possibilities to prepare for the knowledge test, by working through appropriate test items under simulated test

conditions. Given the modern prevalence of home computers, however, it would appear promising for the future to design and make available also teaching/learning media with which it is possible to convey and develop specific partial competences in the fields of traffic perception and hazard recognition, for example by way of dynamic traffic scenarios and video sequences. To this end, it is necessary to confirm not only the safety gains, but also the acceptance and actual use of the corresponding teaching/learning media.

If greater weight is given to independent theory learning as an element in the system of novice driver preparation, this could furthermore free up capacities currently tied to knowledge presentation within the framework of formal driving school training, and would allow more resources to be devoted to supervised practical driving exercises or the development of self-reflection capabilities and – to a certain extent – general attitudes to road safety. Through appropriate “blended learning” concepts, the proportions of training which necessarily require attendance in the driving school could be combined in meaningful fashion with the possibilities for independent knowledge acquisition based on “e-learning” offers (see also Point 3). As shown by the examples from various countries, independent learning forms can indeed be integrated into novice driver preparation as pedagogically effective components in their own right.

(3) Strengthening of the integration of theory and practice in formal driver training

In the German system of novice driver preparation, theory classes and practical driving instruction are mandatory training elements for all novice drivers. The content to be conveyed by the driving schools during theoretical and practical training are stipulated in the Learner Driver Training Ordinance (FahrschAusbO). The latter also specifies that the teaching concept for driving school training must provide for mutual references between the theoretical and practical training components, and that they are to be integrated with each other in the course of the training as a whole. To facilitate implementation of the stipulations contained in the training ordinance in practical driving instruction, the German Federation of Driving Instructor Associations (BVF) has elaborated a set of curricular guidelines (LAMSZUS, 2000), which are recommended to driving instructors as a planning aid. There is nevertheless no overall conceptual integration of the theoretical and practical training contents in the form of a general curriculum for formal driving school training – as part of the framework concept for novice driver preparation demanded under Point 1 above. Evaluation of the training

curricula and teaching plans in different countries showed that, compared to Germany, the driving school training in a number of other countries is characterised by more pronounced integration of the theoretical and practical training components. To this end, certain areas of content and corresponding teaching and learning methods are described in the form of training modules and arranged in a sequence founded on teaching and learning theory. Within each such thematic module, basic theoretical knowledge is conveyed and consolidated by way of relevant practical exercises. Examples of modular training curricula are the curriculum for driving school training in Denmark, or the Dutch training programme “Driver Training in Steps”. The elaboration of an overarching curriculum for driver training in Germany, with corresponding integration of its theoretical and practical components, could possibly enable more effective use of the available learning time in formal driver training. It is also conceivable that innovative training alternatives could supplement traditional approaches, for example through the systematic incorporation of computer-assisted forms of independent learning into the teaching/learning process (“blended learning”, see also Point 2).

(4) Strengthening of accompanied driving in preparation for the transition to solo driving

With the introduction of an accompanied driving model, the German system of novice driver preparation has been expanded to incorporate a teaching/learning form which is known to contribute to the safety of young drivers in road traffic. In its present implementation, this teaching/learning form is only available to the group of “early beginners”, namely those novice drivers who already seek to obtain a driving licence from the age of 17 years. The framework conditions (start of the accompanied phase from 17 years, end of the accompanied phase at 18 years) automatically restrict the maximum duration of use to 12 months, and the average actual period of accompanied driving is somewhat shorter still at around 8 months. To further increase the safety benefits of this teaching/learning form, it should be made available to as many novice drivers as possible, as an optional long form of practical driver preparation. This requires the development of models which are independent of age and – in contrast to the “BF17” model – are not tailored solely to the group of early beginners among driving licence applicants. At the same time, it would be expedient to determine whether closer integration of the accompanied practice and formal driver training, as realised in “integrative models”, is able to contribute to a strengthening of accompanied driving. A

test after the accompanied phase (see below), finally, would extend the control function of testing beyond the restricted context of formal driver training, and could also encourage greater actual use of the opportunities to gain practical driving experience.

(5) Development of protective precautions for the initial phase of solo driving

It is evident from graphs which plot the frequency of accident involvement against length of driving career, that the initial phase of solo driving – despite the novice driver having been granted a driving licence – is a phase of continued learning and driving competence acquisition. In most systems, this phase is characterised as a special “autonomous learning phase”, with a variety of protective regulations applicable to novice drivers. In the sense of an overall preventive approach, such measures usually take the form of lowered sanction thresholds for novice drivers, in combination with specific preventive measures in response to traffic offences (e.g. improvement seminars, driving licence withdrawal). In Germany, probationary regulations have been in force since 1986, and were subsequently tightened and evaluated in 1999 (DEBUS, LEUTNER, BRÜNKEN, SKOTTKE & BIERMANN, 2008). A marginal safety gain was confirmed after the initial introduction of a probationary period, but no evidence was found for further improvement attributable to the later tightening of the regulations. In addition to the probationary regulations, an absolute zero-alcohol rule was introduced in 2007 for all novice drivers during their probationary period and thereafter, where applicable, up to the age of 21 years. It was proved that this measure resulted in a reduction in alcohol-related accidents in the target group. Given the positive findings with regard to the effectiveness of protective measures in the GDL systems, it appears promising to investigate the potential of further precautions for the German system, and to implement the autonomous learning phase as a protective learning setting to a much greater degree than in the past.

(6) Differentiation of test demands in the theoretical driving test

The project “Optimisation of driving licence testing” which was commissioned by the Federal Highway Research Institute (BAST) in 1999 delivered important impetus for methodical further development of the theoretical driving test in Germany. In the final research report (BÖNNINGER et al., 2005), the introduction of the computer as a test medium was identified as an essential prerequisite for the development of innovative test item formats to overcome the existing methodical limitations of the test

and to improve its selection and control function. Within the framework of the subsequent nationwide introduction of a PC-based theoretical driving test, the first steps were taken to implement various recommendations from the research report, including the continuous evaluation of parallel tests and test items, and the elaboration of methodically innovative test items to address, above all, the topic of hazard avoidance. The measures implemented to date have already achieved important methodical improvement of the theoretical driving test, for example rotation of the test questions and answer options to invalidate superficial, schematic learning strategies. The planned expansion of the conventional instruction formats for multiple-choice questions will mean that traffic-related situations are no longer presented to the candidate solely as static illustrations, but may also take the form of dynamic sequences. This development follows a path which will lead to important changes in the test demands, and permits assessments of candidate competence with a significantly closer reference to actual traffic demands.

Alongside the dynamic nature of traffic situations, the limited time available for information searches, the weighing up of action options and execution of a reaction decision also play a substantial role in the mastering of driving demands. The ability to take a speed component into account in the assessment of test performance is another development step which would at the same time permit appreciably stronger differentiation of the current test demands. Where such speed components are closely related to the demand situation in real traffic (e.g. timely hazard recognition and avoidance), they would furthermore enhance the validity of the test.

A traffic perception test, as already implemented as a form of testing in a number of the countries analysed by the present report, could presumably also serve as a bridge between the traditional theoretical and practical driving licence tests in Germany in the nearer future. In this context, it appears necessary to understand the individual – existing and future – forms of testing as components of a more comprehensive methodical concept for the assessment of driving and traffic competence. Within this concept, they should preferably complement each other with regard to their test content and the elements of competence assessed, whereby each would compensate the methodical deficits and limitations of the other forms. The different forms of testing, with their specific methodical and content-related benefits and limitations, should then be incorporated into the process of novice driver preparation in accordance with the

laws of driving competence acquisition, and furthermore associated with the corresponding teaching and learning forms. Hazard recognition and hazard avoidance cannot be tested adequately in a traditional knowledge test and at the beginning of novice driver preparation. A traditional (practical) driving test is likewise subject to limitations: While it is true that the mastering of demand situations in real traffic permits assessment of the candidate's hazard recognition and hazard avoidance capabilities, safety considerations prevent the driving test examiner from deliberately bringing about the corresponding hazard situations. Traffic perception tests, on the other hand, are ideally suited for this purpose, with their facility to present an unlimited diversity of computer-generated and standardised traffic situations.

(7) Differentiation of competence assessment in the practical driving test

The methodical foundations and historical background of the currently applicable model for the practical driving licence test were described in a corresponding study between 2005 and 2008, and starting points were outlined for further development and optimisation of the test (STURZBECHER, BÖNNINGER & RÜDEL, 2010). On this basis, the BASt project "Optimisation of the practical driving test" identified possibilities for optimisation with a view to medium- and long-term further development of the practical driving test within the system of novice driver preparation. One intention of the elaborated proposals is to establish the technical and organisational prerequisites for scientific evaluation of the test (e.g. through development of an electronic test report). In future, furthermore, the traditional event-oriented recording of driving errors is to be augmented with competence-based observations and assessments of test performance by the driving test examiner. The underlying observation categories and assessment criteria, together with the detailed description of test demands in the form of driving tasks, permit a differentiated assessment of competence and feedback to the driving licence applicant on remaining competence deficits. It is to be expected that this differentiation in competence assessment will enhance the selection and control function of the practical driving test.

(8) Improvement of learner assessments

Systematic learner assessments and discursive evaluation of the results together with the learner are an important source of orientation for the further course of driving competence acquisition, both for the novice driver himself and for his driving instructor or supervising accompanist. Examples from other countries show that such learner as-

sessments can be integrated as fundamental elements of the system of novice driver preparation at various points of the process of driving competence acquisition. In Germany, too, learner assessments could support competence acquisition as further "diagnostic instruments" alongside driving licence tests – possibly also beyond the commencement of solo driving – and could at the same time contribute to consolidation of the acquired competences. The aforementioned observation and assessment criteria represent an important methodical foundation for the assessment of driving competence and could be used, for example, in the context of "evaluation driving lessons".

(9) Improvement of the selection and control functions of driving licence tests through modification of their positioning in the system of novice driver preparation

In the German system of novice driver preparation, two tests must be passed to obtain a driving licence, namely a knowledge test ("theoretical driving test") and a driving test ("practical driving test"). As far as their arrangement within the system is concerned, it is stipulated that successful completion of the theoretical driving test is a prerequisite for admission to the practical driving test. The practical driving test is taken at the end of a course of formal driving school training. For novice drivers who learn to drive exclusively in a driving school, the passing of this test marks the transition to solo driving; for users of the "BF17" model, by contrast, it is followed by an accompanied phase of up to 12 months. In connection with the theoretical driving test, it can be determined that, parallel to the differentiation of test demands and assessment of skills relating to traffic perception and hazard recognition, it is necessary to provide corresponding opportunities for practice to enable development of the required partial competences. For the positioning of the test, this means that a later placement is expedient, or even imperative, where the test is to assess complex or specifically action-referenced demands. It would here be conceivable – in comparable manner to some GDL systems – to distinguish a "knowledge test", which could be planned at a relatively early stage (e.g. as an "entry test"), and a "traffic perception test", which is not taken until the novice driver has acquired a certain degree of driving experience (e.g. shortly before or even after the commencement of solo driving). With regard to the practical driving test, it is conspicuous that, in many cases (i.e. insofar as the candidate does not already possess practical driving experience with other classes of driving licence), the current positioning within the German system of novice driver preparation permits merely

verification of an adequate initial competence, which the novice driver has usually acquired exclusively by way of formal driving school training. In other words, the development of more comprehensive driving expertise is postponed until after the test, i.e. under protective regulations during the autonomous learning phase, or possibly beforehand in the supervised context of accompanied driving. Provisions for a driving test, or even a traffic perception test, to be taken after a longer period of practical driving experience – in conjunction with opening of the accompanied driving model for other age groups – would contribute to the ever greater accessibility of accompanied driving as a safety-enhancing measures for novice drivers in Germany, and to more intensive and targeted use in preparation for the outstanding test.

(10) Optimisation of quality assurance measures and constant further development of novice driver preparation

A stronger scientific foundation for novice driver preparation was already demanded under Point 1, with a view to development of a framework concept. On this basis, it is possible to systematically expand the otherwise seemingly isolated measures relating to quality assurance and further development of different forms of teaching/learning and testing, and in this way to constantly widen the system's positive effects for road safety.

To conclude, let us return once more to the overall objective of the present report: Both previous international overviews of the forms and models of novice driver preparation (e.g. EU Project BASIC, HATAKKA et al., 2003; EU Project GADGET, CHRIST et al., 1999; ENGSTRÖM et al., 2003; MAYHEW, SIMPSON & SINGHAL, 2005; TREMPPEL, 2009; NEUMANN-OPITZ & HEINRICH, 1995) and the comparative analysis contained in this report reveal immense diversity in the legal framework conditions for driving competence acquisition, in the forms of teaching/learning and testing used, and in the design and integration of these measures within specific architectures for the preparation of novice drivers. This diversity seems particularly remarkable, as neither the individual learning prerequisites of the novice drivers (e.g. their thought structures and capacities for reflection), nor – at least in the industrialised countries – their learning setting (e.g. vehicle technologies, road systems, road traffic laws) can be seen to display an equivalent degree of variance. Consequently, although the demands placed on a functional system of novice driver preparation are presumably similar, there is significant divergence between the national systems implemented in the various countries. This suggests that valuable im-

petus for system optimisation could be derived from a system comparison, particularly where analyses of the safety impact are available. The present report is intended as a contribution to such development.

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