



Methods and Assessment in Training for Professional Drivers

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For further information on the project please consult: www.project-profdrv.eu

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Short summary:

This deliverable focuses on assessment and methods in the initial and further education of professional drivers. We describe differences and similarities in the partner countries and reflect on further developments and research demands.

(1) Introduction

In this analysis, we describe how initial and further education for truck drivers in Europe, based on the directive 2003/59/EC, is implemented in terms of methodical and didactical aspects. The descriptions derived from two research works conducted in the ProfDRV project in Germany, Austria, Hungary, the Netherlands, Spain, England and Italy¹. On the one hand, a questionnaire was prepared and answered by the partners in this project. On the other hand, case studies were prepared in order to include the view of more training institutes, companies, trainers, and participants.

First of all, we will introduce the training context: its contents, participants and organization. Then we will focus on the description of the applied methods and assessment approaches. Finally, we draw conclusions and sketch perspectives for further development.

(2) The training context

(2.1) Training contents

The project partners recognized the following work processes as part of VET for professional drivers in their countries (see table 1). Surprisingly, there are only two aspects which seem to be common for the VET program in all reviewed countries: "execute small repairs" and "plan and calculate driving and resting times". The Netherlands and Germany have the most encompassing curricula.

Table 1: VET curricula for professional drivers in the project countries (source: VTL presentation prepared for 2nd ProfDRV meeting).

Work process	UK	NL	S	H	E	A	D	I
1.1 Execute travel preparation		x	x	x			x	x
1.2 Manoeuvre the lorry/truck		x	x	x	x		x	x
1.3 Professional traffic participation		x	x	x		x	x	
1.4 Execute daily checks	x	x	x		x	x	x	x
1.5 Execute small repairs	x	x	x	x	x	x	x	x
1.6 Couple and uncouple vehicle combinations	x	x		x	x		x	x
1.7 Plan and calculate driving and resting times	x	x	x	x	x	x	x	x
1.8 Asses condition and quantity of the cargo	x	x	x		x	x	x	x
1.9 Loading and unloading the cargo	x	x	x		x	x	x	x
1.10 Dividing and securing the cargo	x	x	x	x	x		x	x
1.11 Take care of documentation	x	x	x	x	x		x	x
1.12 Take action in case of incidents / accidents	x	x	x			x	x	x

¹ The text was compiled and edited by Joanna Burchert and Nils Petermann from ITB, University of Bremen in Germany. In order to preserve the right tone, we used phrases from the partners' questionnaire answers and case studies: For this reason, this text can indeed be regarded as common work of the project ProfDRV.

The regulations concerning **obligatory modules for periodic training** differ from country to country. While there are no obligatory contents in the UK, there are a number of specifications for the other countries:

- Practical driving (the Netherlands),
- Defensive training, load the vehicle with regard for safety roles, regulations governing the carriage of goods, physical and mental ability and physical risks, road safety and service (Sweden),
- Safety (esp. load safety), laws and regulations, and healthcare, safety concerning handling of trucks/buses on the road and environmental safety, service, basics in logistics (Hungary),
- Advanced training in rational driving based on safety regulations, application of regulations and laws; health, road and environmental safety, service, logistics (Spain),
- Rational driving (7 hours), optimisation of fuel consumption (7 hours), cargo safety (5 hours), knowledge of social law conditions (4 hours) and rules of the road freight transportation (1 hour); health, transport and environmental safety, service and logistics (3 hours); knowledge of the economic environment (1 hour), special training courses for licence C or D (7 hours) (Austria).
- Improvement of rational and safe driving, application of laws and regulations and health, security, service orientation and logistics. Further issues like eco driving, load security and partially driver safety training have been added in order to meet the requirements on periodic training in terms of length and content. The time distribution can be defined individually (Germany),
- General programme: Knowledge about the controls of the vehicle and behaviour of the driver (7 hours); behaviour rules and responsibility of the driver (7 hours); professional risks and psycho-physical conditions of the driver (7 hours); Special programme for truck drivers: load and unloading of good (7 hours); regulations of carriage of goods (7 hours) (Italy).

Additional topics that can be found in many countries are the electronic trip recorder, human factors (sleeping and resting periods, healthy nourishment), latest technology in fuel injection, scanning, customer friendliness. In the Netherlands, also language skills were fostered.

From the point of view of the trainers, the **most difficult topics** in driver training are driving time regulations (steering and resting periods and the rules of being on standby); transport of special freights, custom rules and inspections, international licenses, defensive driving and road awareness, mathematics (calculation on eco driving) and – surprisingly – driver's image, because it is not perceived as a part of everyday's work but as a private issue. To avoid conflicts, the least is often discussed in a very dialogue-oriented way. From a German trainer's point of view, most drivers have big gaps in their knowledge. This does not only concern legal regulations, but also the technique within the truck.

In Austria and Germany, most curricula are **developed by** publishers (BOS, Ebner and MMM in Austria; Vogel, Degener and Hendrich in Germany) along the guidelines of the directive. The training providers chose one of these books or software for their training, which facilitates the implementation of the directive. Also in Italy, there are standardized materials by different publishing houses, which actually are adapted to the multiple-choice test-log of final exams in initial training (see below). In the Netherlands, time tables and contents are developed by the VET schools, based on the qualification documents of the Expertise Centre of Transport and Logistics. In the UK, individual course creators put a course together and the responsible national agency (JAUPT) approves the course in accordance with their criteria.

(2.2) Training institutions and trainers

In all reviewed countries, the initial and the periodic training must be conducted by an **approved training body**. The accreditation is done by national authorities. The most relevant requirements for the training institutions encompass enough space and adequate facilities. Example: To obtain the authorization as a training centre in Austria, a request has to be made in the respective provincial government. The following documents must be presented: a training program, information about instructors, information about teaching materials, the estimated class size and the description of a quality assurance system. Every training provider has its own measures of quality assurance. The examination is held by the municipal authorities.

While in Spain a training body needs to have a certain minimum staff, most German trainers are working on contract base, they are not regular employees of the training centre. The **instructors** must prove that they are competent and experienced enough to deliver the training, and they must be approved by a responsible institution. Besides the definitions in the directive, some countries have own specifications. For example in Hungary, to teach the subjects „Sensible driving according to security rules“, „Applying the regulations in practice“, „Medical, road traffic and environmental security, car service, logistics“, „Consultation“, good presentation skills are required, as well as „C“ or „C“ AND „D“ category driving licence according to the level of the training, at least five years of topic relevant working experience and one of the following university or college qualifications

- a degree qualification as mechanical engineer, car engineer, traffic engineer or plant engineer in the specified branches from any university or college
- a degree qualification as teacher of mechanical engineering, car engineering, traffic engineering or general mechanics
- a degree as vehicle technician officer aquired at the Miklós Zrínyi University of National Defense (or its predecessor).

Also qualified to hold lectures are persons who have:

- a university or college degree from a state educational institution AND at least five years of truck driving experience or experience in logistical organisation in the driving licence category of the training ,
- a qualification as „traffic officer“ AND at least 10 years of relevant working experience.

The requirements to offer practical training include a valid driving licence in the relevant category, a trainer qualification for practical driving training, and being listed in the list of qualified trainers. In other cases, the National Transport Authority (NKH) decides individually over trainers' admissions.

In some cases, single training institutions have higher and more specified requirements for their trainers than defined by the EU directive and national regulations.

(2.3) Training participants

In Germany, Austria and the Netherlands, the qualifications to become a truck driver can be gained in schools as a part of regular education (in Germany and in Austria: dual system of education). In initial training for adults, the typical training participant is 18-21 (UK) up to 25-30 years old (Italy), male, new in the sector, and has lower secondary education (Italy) or is a college leaver with average grades (UK). In periodical training, the drivers have a varied background and often poor school grades; most of them have not passed any initial professional driver training. Many of them only have the necessary driving license, but are experienced drivers. Their average age refers to the average age of drivers: between 35 and 49 years olds (Austria, UK, Germany).

(2.4) Training organisation

In Germany and the UK, many training organisations address freight companies as a whole in order to organize periodic trainings. The training offers often were adapted to a company's needs (especially concerning the topic "load securing"). This is possible to different extents: while in Germany only the **time distribution** is quite free, in England also the **choice of topics** is in the hand of training providers. In Austria, contrarily, individual drivers refer to a central authority for driving schools in order to inscribe for training. While in Austria many driving schools do not offer the training since there is no economic benefit in doing so, in Germany rather too many **new providers** are expected to rise in the coming years.

The **duration of vocational training** is two to three years when it is part of public VET system; 20 hours (Spain) to 30 weeks (Sweden) when it is part of private VET programs.

Periodic training **groups** in Germany can be quite big (20-40 persons), while average Austrian groups are very small (5-10 people). Training in the UK usually takes place with an average of 10-12 drivers per classroom. Also in Italy, the classes (in initial training) are usually medium with 8 -15 participants per group (or even 2-3 participants, if requested). Many of them (up to 50%) leave before the end of the course due to high prices and/or difficulties related to exams/training contents.

Initial training is paid by companies (UK), by the government (Sweden), by the participants (Hungary, Italy) or by a combination (NL, Spain, Austria, Germany). The **costs** of periodic training were as well assumed by the companies (in UK, NL, Sweden) as by participants (Hungary, Italy) or in combination (Spain, Austria, Germany). In Germany, federal sponsoring is available; some training companies offer support in application for these funds. The subsidies were e.g. provided by the Federal Institute of Freight Service (Bundesamt für Güterverkehr, BAG). The price for training depends of its content – individual eco coaching and ADR are more expensive – and varies between around 220 Euro (UK) and 1700 Euro (Netherlands) for the 35 training hours.

The **distribution of training days** is not regulated in most countries; e.g. in Germany the periodic training very often takes place once a year, on a Saturday. Only in Hungary the training is done at once because of an obligatory theory test in the end. The timeframe of initial training varies, too: in some cases it is a daily evening course with 2-4 hours which takes 1 or 2 months (e.g. Italy), in other cases it is adult education for unemployed which is conducted in daily seminars for a few weeks.

In all countries, the continuing participation **certificate** is registered on the driver's license. Usually the further training is regarded as part of the working time (exceptions: Hungary, Austria, some companies in Germany).

3) The training methods

Driving a vehicle as a basic competence of truck drivers is practiced in initial training in each reviewed country, but it may take less time than expected (e.g. in Italy: 10 hours in the frame of a 140 hours initial training course, 20 hours in the frame of a 280 hours course). In periodic training, driving is obligatory only in Sweden, Spain (20 hours) and the Netherlands (7 hours, can be substituted by simulator). Here, **eco driving** is the most important aspect. Besides theoretical training, it can be practised by **driving with a coach** and be combined with an **individual consumption analysis**. In some countries, like the Netherlands, special software is used to evaluate and to foster eco driving. In the UK and the Netherlands, **ADR-training** can be part of periodical qualification. Although driving on "**special terrain**" is also expected in the driving training, most countries don't have any specifications concerning it (exceptions: the Netherlands, where dimensions and aids are fixed; Spain and Italy, where the number of optional training hours is defined (4-8)). In Italy, **simulators** can be used to practice driving in special terrain – but usually real trucks were preferred and due to the short training time the experiences are very limited. Generally, the use of simulators is not unusual in most countries (the Netherlands, Hungary, Spain,

Germany) in order to practice eco driving and driving in unusual, dangerous situations (bad weather/ traffic conditions, technical failure). In England and Austria, it is not allowed to use simulators at all, while in Sweden and in Germany it is possible to use simulators in periodic training, but not in initial qualification.

E-learning in the sense of distance learning is used rather infrequently. One reason for this may be that truck drivers and their working places were not regarded as affine to computers. But also, some training providers in our case studies doubt that e-learning is effective. This lack of evidence leads to some limitations in the use of e-learning: In the Netherlands, it is defined that maximum 50% of the teaching can be done online; in Italy, e-learning is not scheduled in initial training and expressly not allowed in periodic training. In Italy, though, one or more lessons can be substituted by multimedia file recorded lessons (the content should suit the technical requirements of the national regulations) and some schools offer additional support after examination, e.g. by Skype Conference.

Also in other countries, as a matter of course, training lessons are supported by **multimedia tools**: PowerPoint presentations, films, photos, and work on PCs. Some trainers in Germany, for example, adapt their presentations to the firms whose employees they are qualifying: they use pictures of accidents that occurred with the company's trucks, training videos provided by the producers of the trucks used by that company etc.

In some cases, trainers foster **sharing of experience between drivers** – not only by providing breaks that are long enough, but also by initiating group discussions. For many trainers it is important to keep the drivers alert by asking **questions** or requesting opinion throughout the course, all the while explaining the content in a plain language. They will also pause to explain a point to an individual who is struggling, and will maintain awareness of the environment around them.

Some training institutions regard **working experience and practical relevance** as the best training, and so they connect initial qualification with apprenticeships in companies (in the Netherlands, Germany², recommendation in Austria (see below). Similarly, although they have a good stock of trucks, some CP providers e.g. in Germany encourage the drivers to pass the training in their own companies' vehicles because they assume that this fosters better and more sustainable learning. In some cases, the training itself takes place in a company's rooms; it is quite easy to receive official accreditation for training rooms.

All in all, initial training is usually a combination of **theory and practice**, and also in the periodic training most reviewed countries prefer a combination, although the practical part might be very low (e.g. in Austria and the UK). Only in Italy, further training is 100% theoretical. A fixed scheme for theoretical and practical courses is provided by competent authorities in the UK, Sweden, Spain and Italy. Many training providers regard practice as a cost factor, but also as a quality criterion for training. For example, in a training institution in Germany, the ratio of theoretical and practical learning is about 4:1 - everything that can be done in a practical way is done in a practical way in order to keep the participants alert:

- In eco driving training, the participants first make a test drive. In the second part, this is analyzed and a theoretical input is given, explaining e.g. why slower driving reduces fuel. In the third part, the driver again moves the truck; he is accompanied by a trainer who supports him in using the new knowledge.
- In the module on driving time regulation, besides theoretical input on existing laws, the new electronic trip recorder is introduced as a tool by showing some models. Another practical access is to analyse the recorded driving times of the participating drivers.
- Load securing is trained with driving manoeuvres, illustrating how the goods move with the truck.

² In Germany, this is especially important for advanced training thought as retraining into occupations or other professions.

3) Assessment of the training

Assessment is usually a part on initial training, and in most reviewed countries a **combination of training (140/280 hours) and test** is compulsory (exceptions: in the Netherlands, in Austria³ and in Hungary a test is enough; in Germany both options are legal). Since there is a multitude of regulations in the project partner countries, some examples will be presented in the following in order to illustrate the different approaches.

Example 1: In Austria, the final exams are conducted by the provincial governments. The examination consists of multiple-choice questions (in a test which takes 4.5 hours and includes between 60 and 80 questions depending on the provincial government) and a discussion of "real life scenarios". Every provincial government ("Bundesland") has its own procedure. There is also a practical test which takes 90 minutes. The results of the tests show that there are some candidates not able to get through the test without education and training. That's why some experts pledge for a compulsory number of units to be completed. Other VET-providers contrarily state that the final examination would be that easy, that one can pass it without participating in a VET-programme. It is not possible to investigate how many of the persons who failed had visited a VET-course before taking the exam.

Example 2: In Italy, multiple choice tests are the only tool for exams - no test is foreseen for practical driving. The schools criticize that this kind of exam does not meet evaluation needs: there is no confrontation between candidates and evaluators; most questions are on complex and theoretical aspects (such as physical forces or very detailed regulations) and are asked in a misleading way (teachers themselves often have doubts whether the response is right). The assessment procedure consists in confronting ticked answers with rights ones. So, many people (50%) are not successful in written examinations. It is said that if they want to pass, they mainly need to memorize facts, without deeply understanding what they are doing. The multiple-choice test has forced teachers to change didactic methodology towards a purely theoretical approach. The criteria are based on national regulations.

Example 3: In the Netherlands, the driver qualification in VET school is organised by each school separately; driving examination is done by a competent authority. There is no standard procedure, but the test content refers to the qualification dossier, which is a result of education that is oriented on national regulations from Education Inspection and the competent authority, based on implementation of directive.

Until now, assessment is not implemented in periodic training (exception: Hungary, where almost 100% of the drivers pass the test). In the UK, often short, not official tests are used to measure the driver's knowledge immediately after the training course. Examples: If the training was based upon a legal requirement, then the legislation is used as a benchmark. If the training is based upon best practice, then industry publications and proven methodologies are cross-referenced. The assessors are usually the training provider or the driver's company.

Satisfaction of the customer is regarded as crucial by the training providers, which fosters the use of feedback questionnaires⁴.

³ Although Austria has the Test-only version, a preparatory course is recommended, because of the extensive contents, which have to be learned for the exam. There are 4 different options to do the initial qualification: 1.3-year apprenticeship. After 3 years apprenticeship the apprentice makes his driving license and takes part in the final apprenticeship examination. This examination is recognized as initial qualification (theoretical as well as practical part). 2. C-Driving-Licences in combination with a preparatory course for the initial qualification in a driving school. 3. C-Driving-License before, but then the driving licence can't be used commercially until the driver has passed the initial qualification. 4. If someone has completed an apprenticeship as construction technician, motor vehicle electrician, motor vehicle technician, agricultural engines technician or forwarding merchant it is possible to do the final apprenticeship examination to become a professional driver. The candidate therefore does not have to do the theoretical test, but a 45 minutes practical test to get the initial qualification. Point 1 and 4 can be considered as best practice in Austria. The initial training must be conducted by officially-approved training bodies; each of the nine Austrian provinces can approve its own training bodies.

⁴ Some VET providers are sure that the drivers' satisfaction is not only due to good trainers and adequate training contents, but also has to do with good meals, pretty training rooms and the image of the training provider. Consequently, they do not only invest in trainers, but assure good lunches and fresh wall colours.

(4) Perspectives

The goal of the directive 2003/59/EC is to assure that truck drivers are well prepared for the challenges of their work. The acquisition and long-term maintenance of vocational expertise therefore is the main issue addressed in initial and further training. If employability in terms of flexibility is fostered, this is rather a side-effect (for example in cases, in which basic of logistics were provided). Entrepreneurship as well is only a minor issue.

On the methodological level, the adjustment to the single companies' needs in further training is regarded as useful, because it enhances the drivers' learning and the effects for the companies by solving the greatest problem of continuing education: the gap between the training situation and the working life. This gap derives not only from the difficulty of cognitive transfer, but also from the difference of roles and legitimations (Köster 2003). On the other hand, this orientation may restrain individual drivers' interests that go beyond working in this company. Further research is needed in order to find out whether there are such demands. Also, it is not clear, in how far the adaptation to certain companies inhibits building up vocational flexibility: here, the question of contributing to theoretical knowledge is relevant. Generally, vocational education is a field in which a good balance between theory and practice needs to be found, but the temptation to provide a lot of "how to" and only a bit of "know why" is quite big (Jenewein & Rauner 2002). Further research is necessary in order to find out which pedagogical value curricula for professional drivers have (e.g. by using the methodology of Gruschka 2011).

Since drivers are regarded as a group that is not dedicated to learning, many training providers pay great attention to a teaching that raises interest e.g. by using actual and vivid examples, by beginning with the drivers' own experiences, by fostering peer learning etc. A good mixture of practical and theoretical approaches is regarded as more promising than pure theoretical teaching (while the least is cheaper).

As a third point, the scepticism of new media points to concepts of good education:

- Generally, it is not clear whether **e-learning** is more sustainable than traditional education forms (<http://www.nosignificantdifference.org/>). Research in the field of vocational learning shows that very motivated, abstractly thinking persons benefit most from e-learning offers, while persons with learning difficulties or educationally disadvantaged persons often have problems with open learning settings like e-learning (Nickolaus 2008, Verstege 2007). On the other hand, a German study by the IAG showed that drivers benefited from mobile learning applications in a project on health improvement. In this study, a user analysis pointed out that drivers prefer to learn in a practical way and with the focus on real-life problems, while flexibility of time and place has a great value (de Witt 2010). So the efforts to improve e-learning offers for drivers should be continued, carefully balancing issues of support and independence, individual and group learning.
- **Power point** presentations are widely used as a tool to make teaching more vivid, but it is strongly criticized in Germany because it has the potential to flatten learning processes by over-visualizing and overloading (Gruschka 2011, Nieke et al. <https://www.uni-rostock.de/aktuelles/alle-meldungen/detailansicht-der-news/news-artikel/professor-warnt-vor-power-point-praesentation/02-09-2011>).
- **Simulators** were often used in other occupations, like aeronautics, and have much potential in the field of truck driving: they make it e.g. possible to practice dealing with unusual and dangerous situations without being endangered and they can provide detailed feedback for eco driving. The simulator therefore enables the training of abilities that would otherwise remain on a very theoretical level, especially because simulator technology has been strongly enhanced over the last years. On the other hand, simulators have the disadvantage of every training setting that takes place apart from the working site: it is unclear in how far the gained abilities will be transferred to everyday's practice (Spöttl o.D.).

Further research is therefore needed in order to further elaborate this transferability and simulator application within training from a pedagogical perspective.

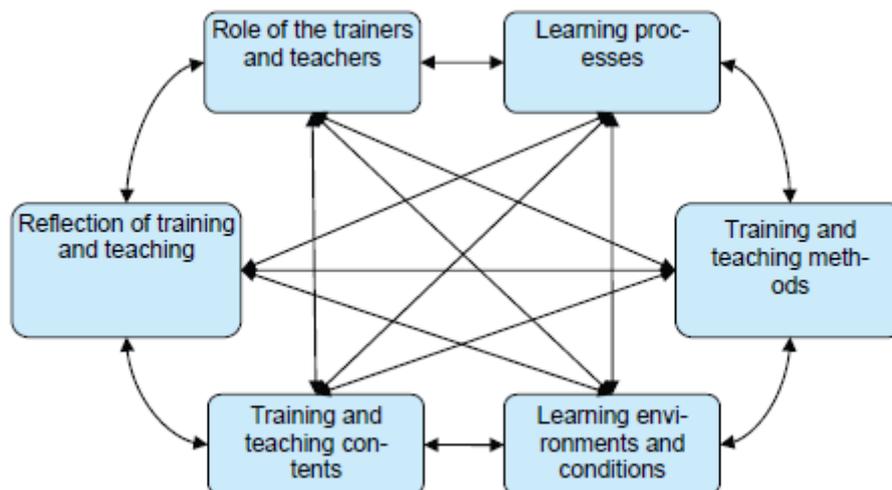
- In contrast to simulators, some **electronic tools to evaluate and to foster eco driving** can be used in the own truck. But it is unclear how precise they are, how clear and correct their feedback is and in how far they are adapted to a certain vehicle. For example, the water glass model that comes up as a smart phone tool is not very valuable to support eco driving in a truck.

Some trainers and training companies, but also drivers and freight companies would like to implement more forms of **assessment**, especially in order to prevent that certificates were provided arbitrarily, to assure quality and to evaluate the achievements of single drivers. What is assessed actually, especially in further training in most of the reviewed countries, is the satisfaction with a training institution and not the participants' achievements. The economic assumption behind this is that customers will remain loyal when they are satisfied; the pedagogical argument is that satisfaction contributes to learning outcomes. While the first idea surely is feasible, Gessler et al. (2011) showed that there is no correlation between satisfaction and learning. The development of other forms of assessment is necessary to find out if there are learning effects like improvement of the driving and loading in terms of safety and efficiency. The problem of such ambitious variables is that they are difficult to measure: On the one hand, such effects should be assessed in the long term and not shortly after training, because transfer from training to working situation is the most critical issue. On the other hand, there are further variables that influence driving behaviour, e.g. (the motivation to stick to the) laws, the amount of fines, the effects of driving abroad (in the UK, 70% of all road traffic accidents directly involving a truck are attributed to a European-registered vehicle – maybe an effect of left-hand driving). There are several ways to improve the actual assessment practice:

- The **analysis of the training group's demands** before the training (based on self evaluation, for example) will reveal which state of knowledge, skills and competencies the participants have and which demands they have concerning the learning setting. This will support the trainer's planning process.
- **Evaluation sheets** in initial education should be provided not before, but **after the test**, because this is the time when participants will feel freer and when they can judge better what they have learned – and what they did not learn well.
- Instead of or in addition to happy sheets, **feedback discussions** should take place, in which the participants share their impressions but also mention reasons for their judgement. This will enrich the training institution's and the trainer's perspective on the training, but will also support the participant's abilities to argue and to reflect.
- Assessment of learning should not (only) take place immediately after the training, but some **weeks or months later** in order to assess what the participants have really learned for their everyday's work. Both participants and their companies should be asked for their impression in order to combine self and external evaluation. The evaluation results should not only be available to the leaders of a training institution, but also have to be discussed with trainers. The **contents of the evaluation** sheet must not only include questions of satisfaction and the training setting, but should also refer to learning effects and the effects on one's work.
- Trainers should be encouraged to **document their trainings** in order to gain a systematic access towards their work and to have e.g. more information about the needs and orientations of participant groups that will come back in a while (in further training).

However, it needs to be questioned if tests are the right way to assure the obviously requested quality in such an education and training context. Different quality assurance methods and tools developed specifically for education

and training should be further investigated in this regard. These tools and methods can refer to a multitude of aspects – in the QualiVET project, the following areas were regarded as especially important for the quality of education:



Picture 1: Quality areas in QualiVET project (Becker, Spöttl & Blings 2007, p. 91)

Training methods, for example, need to be further elaborated in order to fit to the training demands. One such demand, as discussed above, is the question of **commitment towards laws**. Commitment means that drivers do not only know which regulations there are, but that they really want to stick to them, that they take them for serious. Such a motivation can hardly be delivered by a purely cognitive and abstract approach. Instead, group discussions can be a starting point to reflect attitudes towards laws, and also the inclusion of company leaders who signal their own commitment in a clear way is important. The trainers, too, should act as role models, respecting laws in practical exercises and answering even to “stupid” questions. It should also be taken into account that e.g. safety rules were rather remembered when they are repeatedly trained, especially when this training takes place in a working-life-setting (when drivers wear their working clothes, use their own vehicle etc.).

Innovative methods are also important in the field of **key competences** training. As stated in the deliverables on driver shortage (work package 2), key competences are crucial for drivers and their lack is one important reason for employer rejection. (Another argument for the training of social skills is that training in general should not only serve business, but also support contributions to civic society and personal development). Key competences like the ability to reflect, to reason and to accept different opinions can be trained with group oriented methods. To be sustainable in the working context, also this aspect requires the right climate in companies: enterprises should foster and respect the driver's sense for responsibility. Key competences are no explicit content of training curricula, and it relies on single trainers whether they find an opportunity to foster them. The trainers' sensibility for this issue can also be fostered by training.

The development of EQF-related standards for professional drivers' training within the ProfDRV project can provide a possibility to structure initial and further training according to sector relevant standards and competence development theories, but also in terms of the issues raised before in terms of methodical, assessment and quality assurance approaches. For each driver, a competence matrix could be drawn that shows which knowledge, abilities and competencies he/she has and what he/she should learn next. This would support trainers in providing a training that refers to the participants' professional state – on the other hand it will question the set of contents that is regulated on national level at the moment. The EQF-related standards will enhance transparency, foster mobility, assure Europe-wide comparability and, to a certain extent, congruence.

But they can also enhance teaching that not only focuses on knowledge, but also on skills and competences: The intended EQF reference of professional driver training within the ProfDRV project might be especially beneficial for professional driver training because it moves the emphasis of training and assessment from so far primarily knowledge focused approaches to approaches that widen the scope of envisaged learning outcomes to skills and competences. This has of course implications for the development of learning environments, the conduction of training and the assessment of learning and requires a paradigmatic change in many cases and compared to the current situation from a clear input to an output orientation. One might argue that output or learning outcome orientation is not compatible with considerations about training methods etc., but this is only true to the extent that the context in which learning outcomes have been obtained is regardless. However, aspiring the development of knowledge, skills and competences within formalised learning environments does have requirements on their design and implementation in order to enable the development of all three categories of learning outcomes (knowledge, skills and competences) as pointed out before. Same applies for assessment procedures that need to consider all three EQF descriptors (knowledge, skills and competences) as well.

It is an open question whether the drivers' education will remain in the focus of innovation, or if technical developments will be regarded as more promising attempt towards safe and fuel efficient driving. Nonetheless, work research shows that it is too short-sighted to ignore the "human factor", and therefore more insights into training demands and effects are as necessary as the sticking to the good practice of training that – in parts - already exists.

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Annexes:

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