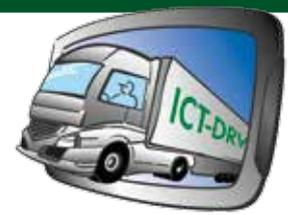


ICT-DRV project- newsletter



Issue 4 – April 2015

Preparing and keeping professional drivers qualification up-to-date for their changing job requirements with multimedia-based learning

Our topics for you

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Editorial: On the way to reaching the necessary quality

First-class trained professional drivers are key to more safety on European roads and at the same time responsible for the success of today's transport industry. New learning media and their application within professional driver qualification are an opportunity but at the same time also a challenge. That's why it was important to us at DERKA to explore together with partners from all over Europe and Canada the question what contribution learning media can make and what is required in order to assure the necessary quality.

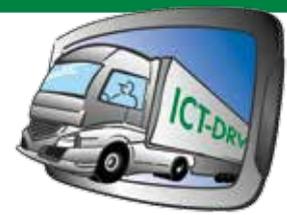
Two aspects became clear: (1) New learning media such as the application of mobile devices for learning close to the work place will be indispensable in future. The same applies for simulators. Simulators can realise training conditions that are not possible with practi-

cal training on the road. Only in this way vocational education and training is able to master the increasing requirements of this occupation. (2) The way to reaching the necessary quality of e-learning and simulator training is cumbersome and requires efforts from all those involved. Also the overcoming of preconceived opinions is necessary. The project results demonstrate impressively what is necessary for that and what value can be added to vocational education and training and the occupation "professional driver".

I want to thank all project partners and supporters for their continuous commitment and contributions to this intensive, interesting and successful project. We are looking forward to implement the results of ICT-DRV and to cooperate also in the framework of other European projects and initiatives on the enrichment of professional driver qualification in future. The European dimension of vocational education and training and the change vocational education and training can make for people and for economy is of major concern for DEKRA Akademie GmbH (DE). We are proud to be able to support and implement projects such as ICT-DRV in order to contribute to the continuous improvement of vocational education and training Europe.

Dietmar Metzger, International Business Development, DEKRA Akademie GmbH





INNOVATIVE MEDIA-SUPPORTED SOLUTIONS FOR PROFESSIONAL DRIVER TRAINING

The roundtable at the ICT-DRV conference exhibited the scope of what technology-supported training can mean, and made evident that drivers with different experiences and from a variety of age-groups can benefit from such training when their learning considerations are taken into account. Moderated by Tamara Miller from Trucking HR Canada, the panel brought experts from several organizations and touched on topics ranging from how the programs go above and beyond traditional computer-based/simulator based training to the issue of quality and what this means for CBT applications, especially in the context of accommodating learner needs.



Andreas Bengtsson, Stagelt (eco2trainer), Sweden

Cargo Dynasty: Get behind the wheel, build your own company, and steer towards a future in the field of transportation

Cargo Dynasty is an educational sandbox style game in which groups of students have to compete against each other in building their own transport empire. The player must train the employees by passing various quizzes and is very often used in a blended learning environment taking in to account limited digital skills among participants.

Eco2Trainer: Serious gaming to improve economical driving techniques

In 2002, a fuel efficiency computer game, where the object was for the driver to get as far as possible with a given quantity of fuel, has been developed in Sweden. Eco2Trainer increases the efficiency of existing eco-driving-training, with a mix of theory and practice, and portable, affordable simulators which frees instructors from time-consuming in-car training.

TinkerLamp: From the warehouse to the classroom

TinkerLamp is a tangible tabletop learning environment that was explicitly designed to support classroom orchestration such as management of multiple activities with multiple constraints, conducted by teachers. The idea behind this program is to bring the warehouse to the classroom and its advantages include just-in-time feedback on their warehouse design.

Panelists agreed that treating drivers as a professional and the human relations side of the equation cannot be underestimated. In this regard, the training and coach-



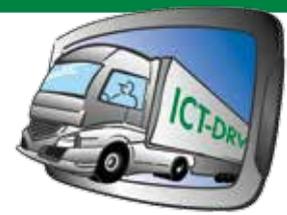
Tamara Miller, Trucking HR Canada

ing element of CBT was highlighted as being essential to user success. Quality is very much dependent on the ability of the program to adapt to their unique learning needs and to make the learning experience relevant. In the end, it demonstrated how learning theory and instructional design can translate into learning experiences that truly benefit the learner.

Professional drivers' periodic training in Hungary in 2014

The training of professional drivers reached a milestone on 10 September 2014, since this day was set as the deadline. Nearly 105,500 professional drivers passed the mandatory initial and periodic training sessions successfully between 10.09.2010 and 30.09.2014. The deadline for the mandatory training of professional bus drivers lapsed on 10 September 2013, which had approximately 25,000 participants. Currently there are about 100 driving schools in Hungary fulfilling this task as a training organization. In general, the participants had been pessimistic in the beginning, but when the training came to its end, they were satisfied with the knowledge that they have learned. The most useful trainings were clearly the ones about Di-





rectives 561/2006/EC and 3821/85/EC. The periodic training is still mostly based on traditional classroom activities, while examination is a multiple-choice answer written exam. The quality of trainings held in 2014 and upcoming years will be improved by a new tender for driving simulators, since the National Transport Authority invited a tender in early 2014 for simulators fully complying with EU regulations and required new accreditation.

In new procurements FOERST simulators were the most prevalent, however, the ECA FAROS brand was also well represented. The figures of participation in the so called 'category trainings' (C, CE, D) show a declining tendency, and currently are at the level of 4,000 participants/year. There were no training participants in categories C1 and D1. The most sought after drivers in the Hungarian labour market are professional drivers with licence and experience in categories C and CE. A remarkable development of 2015 is the renewal and modernization of the entire databank of multiple-choice questions in theoretical examination. Among category trainings (B, C, D) e-learning was the most popular form of training in category B.

The National Transport Authority continuously checks and supervises drivers' training in order to ensure that starter drivers are already in possession of sufficient experience and knowledge to drive safely in road traffic.

Making best use of the simulator within training: Four components for complex learning

The ICT-DRV pilot course on defensive driving focused on the question: How to embed and make best use of the simulator within a comprehensive training concept that goes beyond pure coaching on the simulators but uses the simulator as a training tool to reach concrete learning outcomes.

After looking deeper into the characteristics of the target group and the learning outcomes to be aspired, the well researched and tested 4C/ID Model appeared to be a very promising instructional design approach to realise such training and to reach the pre-defined learning outcomes with the support of the simulator.

Based on this model a 3-day training course has been developed that included

(1) the elaboration and discussion of the theoretical training elements based on "theory drives" on the simulator that have been specifically designed in order to derive the relevant theoretical contents on different levels of complexity from them

- (2) small group-coaching sessions on the simulator spread over the whole 3 days and with increasing complexity
- (3) small group sessions practicing the screening of the surrounding traffic and further parameters
- (4) final complex test drives implemented in an overall group session with joined debriefing and on the highest level of complexity

All in all there have been seven levels of complexity applied throughout the training course: the two lowest levels in a rural area, two levels in an industrial area, two levels in an urban area and a final level with the highest level of complexity.

This way of combining theory and practice based on the simulator experience as the starting point for theoretical learning as well as the group coaching on the simulator as a source for learning beyond the own simulator drives have been evaluated as crucial parts of this training concept. Both trainers and learners have been enthusiastic about the results of the training that clearly exceeded all expectations. But the moderation of the different training elements (being far away from lecturing and regular class-room training) proofed to be very demanding with regard to trainer competences, too. It changes

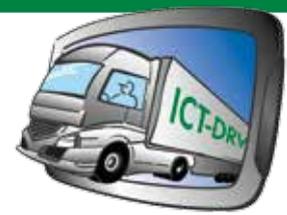


Driver Simulators enhance safety for starter drivers.

the role of the trainer to the one of a moderator and facilitator that requires outstanding moderation and subject-related skills.

The driving simulator has in such a training setting clear advantages compared to practical training on the road because the simulator allows for a modification of learning tasks as well as part-task practice in order to achieve the aspired learning outcomes. The full potential of a top-of-the-range simulator (as well as other types of simulators) as a training tool can optimally be used in this way and leads to a clear improvement of the training and learning process of the learners. In this way the "Y" in the formula





“Simulation = (Reality-X) + Y” and therefore the surplus of simulator use within training can be identified and used in order to optimise training for professional drivers.

Further information on the pilot course are available at EU-project.akademie@dekra.com

The 4CIID model is based on four components a training of complex cognitive skills should consist of. Those components are:

- *Learning tasks... are authentic whole-task experiences based on real-life tasks aiming to integrate knowledge, skills and competences. The whole set of tasks is organised in task classes from simple to complex. A learning task in the context of defensive driving is for instance a driving exercise of a certain predefined route with a number of parameters/ events relevant in the context of defensive driving. The number and difficulty of parameters/ events determine the level of complexity.*
- *Supportive information... directly relates to the learning and performing of the learning tasks. It fills the gap between the learners' already existing knowledge and the knowledge needed in order to perform the learning tasks. In the field of defensive driving this can for instance relate to information necessary in order to assess different kinds of weather conditions with regard to the own driving.*
- *Procedural/Just-in-time information... is necessary in order to learn and perform "routine aspects" of learning tasks. An example for "routine aspects" within defensive driving is for instance the screening of surrounding traffic or the approaching of a crossing in a defensive/economic way.*
- *Part-tasks practice... addresses the automation of "routine aspects" usually reached through repetition exercises. In the context of defensive driving this applies for instance to exercising the screening of surrounding traffic or the slow approaching of red traffic lights.*

Load security training on the distance

Praxis-orientation and e-learning seem to be non-combinable at the first glance but in fact they are an indispensable match when implementing effective e-learning for professional drivers. This has been the result of the ICT-DRV e-learning pilot course on load security for experienced drivers.

Already the first analysis of learners' characteristics and needs clearly showed that pure e-learning would not be effective in order to reach the learning outcomes defined with regard to the load security topic. Therefore a blended learning approach – being a com-

ination between e-learning, work-based learning and tutoring – has been applied in order to make best use of each approaches benefits for this distance learning training course. The ICT-DRV e-learning course on load security, therefore, follows six implementation steps based on Gagnés Nine Events of Instruction:

- (1) Introduction into the course (paper based) and first go through the overall e-learning material
- (2) Initial tutoring with the course tutor (either face-to-face or via phone) in order to start the actual learning in the distance learning course
- (3) Self-study of the provided e-learning material
- (4) Guided learning alongside work with regular praxis tasks to be implemented at the workplace
- (5) Final tutoring in order to evaluate the course attendance and check if the learning outcomes have been achieved
- (6) Provision of follow up material to foster learning and further transfer to the workplace

The e-learning material has been prepared to allow the drivers to add, skip and/or adjust course elements based on their individual prior abilities. Just as the prior learning also the practical work of professional drivers differs strongly. While the basic contents of the course remain the same (in order to ensure a common minimum content of the course) the praxis-tasks have been designed in order to be adaptable to the learners' prior abilities and the different working context of the drivers. If necessary, it is even possible to use an individual set of praxis-tasks for a learner or a group of learners in order to make the course as relevant as possible for the learners practical work.

Praxis transfer is a key challenge for training in general. Especially the development of skills and competences often requires practical training elements difficult to



Individual training for practical work.

realise within e-learning. For this purpose the course received a strong work-based learning component by introducing the praxis tasks that are implemented by the learners in their daily work in order to apply their knowledge and foster the development of skills and competences. Just as the overall course also this part is tutor facilitated in order to overcome difficulties with regard to learning strategies and self-motivation.





Tutoring is in general a very important part of the overall course and is realised in at least two fixed tutor contacts.

The overall course is based on the so called “learning outcomes approach. This approach shifts the focus away from time spend in training towards reaching of a common minimum standard of knowledge, skills and competences being a fundamental requirement for the recognition of non-class-room-based courses. The ICT-DRV pilot course makes use of this opportunity and integrates a dialogue-based evaluation into the final course tutoring based on a common interview guideline incl. indicators to measure the reaching of this minimum standard. In such a way e-learning can become a reliable training method also in the context of the driver CPC implementation.

GAGNÉS NINE EVENTS OF INSTRUCTION

This is an instructional design model developed by Robert Gagné in 1965. The steps are not carved in stone rules but broad considerations when designing instruction.

- (1) *Gain attention: Present a new problem or scenario to gain interest and grab the learners’ attention.*
- (2) *Describe the objective: Inform the learner about what they will be able to do and how they will use the knowledge gained.*
- (3) *Stimulate recall of prior knowledge: Remind learners of related knowledge and skills they already have to help them build on those prior abilities.*
- (4) *Present the material: Present the material through text, videos, images, simulations, etc.. Present in small “chunks” to avoid overload.*
- (5) *Provide learner guidance: Provide guidance strategies like examples, case studies, checklists and mnemonics to help learners store information long-term.*
- (6) *Elicit performance (practice): Allow learners to practice the new skills or behaviour. This provides an opportunity for learners to confirm their learning.*
- (7) *Provide feedback: Provide learners with specific and immediate feedback. Explain the why not just “wrong” or “right”.*
- (8) *Assess performance: Test the learners to determine if the lesson has been learned.*
- (9) *Enhance retention and transfer: Provide the learners with additional practice and material (job-aids, follow-up test), review the course with them.*

European ICT-DRV

project, is Motor Transport Institute – ITS in Poland.

The Institute conducts co-ordinates and popularises scientific research and implementation activity on the subject of road transport. In general, the most fundamental tasks of the Institute’s operation are the general improvement in functioning and organisation of the road transport and limiting harmful effects on the road transport and traffic development with regards to the road safety and environmental protection. Moreover, the Institute occupies itself with the development of new material solutions for the automotive industry.

In scope of the ICT-DRV pilot training called “Passenger safety and comfort assurance training for professional bus drivers”, ITS conducted a simulator-based training including a consistent trainer feedback in August 2014. Preliminary analysis revealed the results as promisingly effective in enhancing the drivers’ skills. The aims of the training were enthusiastically perceived as a novelty compared to the more traditional thematics.

Motor Transport Institute – ITS, established in 1952, conducted thousands of scientific research and service works until 2013. The Institute’s staff participates in Parliament and Senate Commissions preparing stands for the discussions on the legislative acts, and give Government Commissions advice concerning the Road Traffic Safety, introducing several solutions and contributing to improving road safety.

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Project partners put into the limelight:
Motor Transport Institute – ITS



One of the eleven partners, which are supported by public institutions, social partners, training providers, and research institutes are actively engaged in the pan-

