

Digital Media in Driving Instructor Education

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Research Context: Teaching Competence in Driving Instructor Education

The demands for driving instructor's professional skills have significantly expanded in recent years (due to technological progress, traffic density, heterogeneous target groups etc.). Next to scientific-technological knowledge (professional skills), driving instructors require a high degree of self-reflection in communicating knowledge as well as social skills including management competence (Weißmann, 2008). They not only have to teach student drivers how to drive a vehicle but also how to drive it safely and ecologically aware (Bartl, 2006). Thus, driving instructors are faced with high pedagogical-didactic demands and need a teaching competence that refers to a highly situated knowledge (Friedrich, 2005). The training of these skills is very different in the countries of the European Union; there are no binding or unified standards (DFA / EFA, 2009; Bartl et al., 2005).

In this profile of requirements the use of digital media as used in current web 2.0 applications (this includes the associated constructivist didactics) are still irrelevant in respective recommendations and guidelines, especially in regard to the practical phase of the driving instructor education. Over the last years, driving schools have equipped themselves with beamer, laptop/PC and video. However, this technological equipment affects only the theoretical instruction and often replicates an highly instruction-oriented teaching. At least, current recommendations of the German Traffic Justice Council (Verkehrsgerichtstag) take up the term "e-learning" in their demands (Deutscher Verkehrsgerichtstag, 2010).

In the training of driving instructors, video technologies have already been used for decades, which has educational reasons: The use of video for learning has huge potentials especially for the construction of situated knowledge (Reusser, 2005). In the context of driving instructor education one's own driving competence as well as the teaching competence are based on situated knowledge. However, the potentials of video technologies as a medium for learning and teaching will only unfold if (apart from the mere recording of action processes on video) teaching measures for the active-constructive analysis of video recordings are also included. Nevertheless, this use of video material is still underdeveloped. Video recordings are mostly used as presentation aids in the classroom. Thus, available technologies to date are not used in the best possible way and, above all, are hardly combined with the new possibilities of online learning.

Possible Solution: Online Video Annotation

The EU project "Driver Instructor Education 2.0" (October 2009 till March 2011) tackles these challenges. The aim of the project is to improve the driving and teaching competence of driving instructor candidates in selected European countries (Austria, Belgium, and Germany) by implementing an internet portal, special video tools and an e-portfolio which originate from the field of sports coaching (Vohle, 2009; 2010). Video recordings are a proven method for using situated learning in the car in the best possible way: Because situated learning processes are transient they require reflection. Video recordings can foster such a result-oriented self-reflection (Greif, 2008). They considerably facilitate a reflection of one's own behavior because this way it can be observed and

analyzed from an external perspective and in retrospect. Especially for (prospective) instructors a confrontation with themselves is important and productive because somebody who wants to achieve acting competence has to expose oneself to real situations with complex demands.

Therefore, teaching and learning processes in the car are recorded on video while learning opportunities are created within the video. To achieve this, the video recordings in the online portal can be paused at any time and can be annotated with text, drawings etc (timestamp based video annotation). This video annotation supports an active reflection: The driving instructor candidates are not only asked to "quietly" think about their teaching behavior in the car but also to articulate it in comments. Moreover, the driving instructor candidates perceive not only their own learning and driving behavior in the video but also the reactions of the student driver. In this way, reflection processes aiming at the verbalization of situated knowledge are fostered (Seidl & Hacker, 1991).

To reach this target, the learner has to know what subjects are worth reflecting as well as how to reflect on them. This reveals special challenges to the instructional design (Reinmann, 2010) when dealing with video recordings. Single video reflections can hardly improve the teaching competence in the car. It is rather necessary to do this several times, to collect and to reflect the experiences made (especially the annotated videos) and to discuss them in the group if necessary. E-portfolios are well suited for this purpose (de Witt & Czerwionka, 2009). Finally, the online portal not only fosters the exchange between trainer and driving instructor candidate but also between peers. Therefore, it stimulates the communication and collaboration about adequate teacher behavior in the car.

Scientific Research: First Data

The implementation of the online portal with video annotation tools within the EU project will be examined in case studies. The combined implementation and development of the online portal will be documented systematically during the project. On the one hand, field notes of the processes and results from the interaction with the project partners will be taken (process documentation). On the other hand, data from the online portal (e.g. number, scale and quality of videos and comments, frequency and mode of usage of different functions) will be gathered and evaluated on the basis of different research questions. In addition to these non-reactive methods, in the middle and at the end of the project, the participating trainer and driving instructor candidates will be interviewed. Thus, a precise insight into the use of digital media in driving instructor education is given.

The data from the online portal shows that in the first six months 12 driving instructor trainers and 54 driving instructor candidates worked with the videos online. In this time, almost 300 videos were uploaded and nearly 850 comments were written. Apart from text, the participants also used other annotation tools for their video comments. In 616 comments traffic lights (red, yellow and green) were used to judge the situation in the video as critical, uncertain or successful. Drawings were made in 147 of the comments to show what was important in the situation. Moreover, in 92 comments the communication assessment and in 73 comments the emotion assessment were used.

During the session at the ONLINE EDUCA BERLIN 2010 we would like to present more results, especially results concluded from the interviews with the driving instructor candidates and their trainers.

Project Team

The project is run by the Ghostthinker GmbH which has specialized in web-based didactics. The University of the German Federal Armed Forces in Munich is in charge of the coordination and scientific research of the project. Further project partners are the European Driving Schools

Association as well as different driving training centres and driving schools in Germany, Austria and Belgium.

More information about the project and the project partners can be found on the following websites:

- Project website: <http://driver-instructor-education.org/de>
- Projekt platform: <http://driver-in-edu.org/>
- ADAM - Projects and Products Portal for Leonardo da Vinci: <http://www.adam-europe.eu/adam/project/view.htm?prj=5166>

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