Institute of Transport Economics
Norwegian Centre for Transport Research

Summary:

Mandatory periodic training for professional drivers

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We have made a study of the mandatory periodic training for professional drivers through document analysis, surveys of training centres and students, and four case studies. The findings show that the periodic training is in many ways a success. Nevertheless, there are still large groups among students who reported negative expectations and poor learning outcomes. Our analyses show that having attended courses for drivers in passenger transport and having experienced a well-organised course, are strongly associated with perceived learning outcomes and behavioural changes after the course. These are therefore important variables that should be studied to improve future courses.

This report is a study of the newly introduced mandatory periodic training for professional drivers, described in Regulation 16 April 2008 no. 362 *Regulations relating to basic and periodic training for professional drivers.*

The project has studied how the periodic training is implemented in practice at the training centres, and concludes with recommendations for teaching practices that seem to provide the best effects for the driver and employer relative to the stated objectives of the periodic training.

The Directive is implemented through the professional driver regulations and specified in the syllabus for the professional driver training developed by the Norwegian Public Roads Authority (NPRA). On the basis of the syllabus, each training centre is required to develop a teaching plan reflecting how the substantial content and pedagogical approach of the syllabus is to be followed up in their teaching.

On the basis of this plan, teaching staff will conduct its teaching, and this is again interpreted by students, ultimately through daily practice in transport companies. The research topic of the project has therefore been the link between the objectives, content, organisation of training, educational programmes and documentation/assessment.

Objectives and methods

The main objectives of the project were to:

1) Investigate how periodic training and teaching are implemented in practice at training centres that organise periodic training courses.
2) Provide recommendations about which teaching practices that seem to provide the best effect for drivers and employers relative to the objectives of the periodic training.

The project made use of a combination of qualitative and quantitative methods: a literature review of teaching plans, two online surveys, and four case studies.

- The literature review studied the variation between teaching plans from different training centres, and between different types of training centres.
- An online survey was distributed to all educational establishments approved to provide the periodic training. The aim was to get an overview of collaborative relationships, methods, teaching plans, resource situation, teaching staff, etc.
- We also distributed an online survey to drivers who had recently completed the training course. The survey measured the experiences and perceived learning outcomes of the various parts of the course. The survey also contained some key factual questions designed to measure learning outcomes, and questions about the perceived relevance to their work practices, satisfaction with the teaching programme and any change in driving styles when it comes to defensive driving and rational fuel consumption. We have performed regression analyses on the responses from the survey among drivers/students to assess what factors explain variation among respondents of different variables that measure respondents experienced effect of the courses.
- Four case studies of training courses were conducted, two of internal courses, and two of courses run by an external supplier (driving school).

Results

Teaching plans and methods

Like the basic training, the periodic training consists of six modules. Module 1, 2 and 3 are common to passenger and freight transport. Module 4, 5 and 6 is carried out for either passenger or freight transport.

Module 1 Road transport and society

Module 2 The professional driver's safety, health and working environment

Module 3 Vehicle technology and optimum use of heavy vehicles

Module 4 Framework conditions for freight transport/passenger transport

Module 5 Freight transport in practice /Passenger transport in practice

Module 6 Safe behaviour on the road

The review of teaching plans shows that there is relatively little variation in the design of teaching, but the review points out that this may be partly explained by the fact that the syllabus allows for a limited degree of variability. The objectives formulated in the teaching plans are mostly derived from the regulations and NPRA handbooks, and this also applies to the content of the modules – even the free topics are the same in most plans. The greatest degree of diversification is found for topics such as transport economy/society as opposed to task planning. This pattern applies to courses aimed at goods and passenger transport drivers alike. There is no clear distinction between goods and passenger transport companies. The same teaching and work methods also recur in the plans. The distribution of modules over the days of the course usually follows the "template" from the NPRA, but several training centres have chosen to teach topics from Module 3 during the first day of the course. The limited variation found among teaching plans in terms of topics and teaching methods, makes it difficult to explain different learning outcomes with reference to differences in teaching plans.

Changes to the teaching plans are mostly justified with reference to instructions from the NPRA, requirements for approval, or minor technical or staff changes in the programme for Module 6. It therefore does not appear as though the training centres perceive their teaching plans as "live documents", as intended.

Most training centres agreed with the statement: "The NPRA syllabus for periodical training of professional drivers leaves considerable room for improvement", which may indicate that they would appreciate more manoeuvring room and flexibility. Most training centres in the survey, however, agreed that there was good correspondence between the syllabus and the actual teaching provided, but some agreed that they emphasised practical teaching more than adherence to the syllabus. The most frequent feedback provided in response to open questions in the survey, was that the training centres wanted more flexibility when it came to the weight given to different topics and modules, the timing of courses, and opportunities for tailoring courses to individual groups. In the case studies, we also observed that in most cases there was some discrepancy between the actual teaching and the teaching programme as described in the training centres' own teaching plan, although teaching was in line with the syllabus. These discrepancies seemed to be motivated either by the desire to improve teaching or were the results of practical adaptation to the specific situation.

There are, however, clear differences between teaching plans when it comes to the descriptions of learning materials. Several training centres do not mention this aspect of the course at all, while others contain very detailed references to sources and supporting materials. There is little use of IT-based training and distance learning. This variation when it comes to course materials differs from some other countries that have implemented the EU directive and prepared a mandatory compendium or textbook for the periodic training. Several of the responses to open questions in the survey called for compendiums or exercise booklets.

There are no clear differences in the choice of content and methods between teaching plans created by external providers (such as traffic schools) and those developed by transport companies. The choice of teaching and working methods are quite similar for teaching plans for freight traffic, passenger traffic and combined plans. Traffic schools put somewhat more emphasis on the educational platform in the design of teaching plans, and in accordance with this, use a somewhat wider range of educational methods and teaching forms. Overall, the teaching plans tend to emphasise two-way communication, student activity, the use of students' experiences, involvement and inclusion as well as teamwork and knowledge sharing to create reflection. The survey among training centres also showed that discussion and experience sharing was the most prevalent form of teaching. Powerpoint teaching, teamwork, video, supervision and demonstrations are also very widely used in the teaching plans. Role playing, student use of computers, company visits and individual study are markedly less widespread. The review of teaching plans found that they rarely argue for the use of different education methods, but some of the methods chosen can be traced to the educational platform in training centres and in the syllabus.

The case studies also show that training centres focus on student activity, dialogue and reflection, and that students were thus able to influence the content of the course. While this is in line with intentions, it was also pointed out that this form of teaching could mean that students could benefit more or less from the training, depending on their own level of activity.

Transport companies tend to adapt the content of their teaching plans to the specific tasks and challenges of their own employees to a greater extent than others, so that the courses are more tailored to the needs of the company. This was also reflected in the case studies, where we see that the courses are sometimes actively used as a resource for companies to disseminate internal company information and improve the quality of work.

Use of internal resources

When it comes to the use of internal resources, the survey shows that the teaching plan has usually been developed by a group of people (four people on average), and the head of teaching had in nearly all cases been part of this group. When excluding the practical driver training, an average of four people were involved in teaching a course. The head of teaching was in almost all cases present during parts of the course, but in less than half of the cases throughout the course. During case-studies we were told that that the role of the head of teaching was seen as somewhat rigidly defined, and that that the role described did not necessarily reflect those found in practice, where the work is distributed over a group of people. Open answers in the survey similarly indicated that the role was in some cases artificial, and did not reflect the actual division of labour.

On average, training centres spent more time preparing the course than on work after the course. The highest number of hours reported spent preparing for a course was 70, while the highest numbers of hours spent on work after a course was 20. Four out of five training centres reported using ten or fewer hours preparing for courses. This may also be related to a tendency noted in the review of teaching plans; course evaluations seem primarily to focus on the students' experiences of the periodic training, rather than on assessing learning outcomes. A greater focus on evaluation of learning outcomes and the quality of the course could be natural on the basis of the syllabus. Since learning outcomes are usually not assessed, it can be difficult to create a basis for improvements of the course. In the survey of students, a narrow majority (52.4 %) "completely agreed" that they had been given an opportunity to fill in evaluation forms after the course, while a further 16.7% "somewhat agreed" with this statement. This may also indicate a potential for improvement when it comes to using students' experiences to further develop of the course. Only a minority of students (11.3 %), however, completely or somewhat agreed they would have benefitted more from the course if it had been followed by a test. In the case studies, some of the students also pointed out that, in principle, it is possible to follow the course without benefitting from it at all.

According to the teaching plans, almost all transport companies use in-house teaching staff for Module 1, Module 3, Module 4/5, and Module 6 and collaborate with external parties (occupational health services and fire departments) for Module 2. Traffic schools for heavy vehicles seem to use more in-house staff than traffic schools for all classes/training offices or other providers. Module 2 is generally outsourced to external personnel, however.

61 % of those who teach the practical driver training have backgrounds as driving instructors, while 90% have trade certificates and at least five years' experience as professional drivers. 33 % had other backgrounds. The survey of training centres also produced some proposals for more rigorous competency requirements for practical driving instructors.

The students' experiences

The survey among students showed that there is great variation in the experiences of those who have completed the periodical training course. A relatively large group had problems seeing the point of course, but there is also a significant group that experienced the course as interesting and useful. In addition, relatively many report that they have gained new knowledge and a significant group reports changes in driving behaviour after the course, although the majority believed that the periodic training had not affected their driving style.

A majority of students (59.6 %) completely or somewhat agreed that they had expected the course to be a waste of time. 41.1 % of respondents also completely or somewhat agreed that they had not had any expectations. On the other hand, we also see that between 45 and 60%, to some extent agreed that they had expected to improve their knowledge about each of the three topics fuel effective driving, loading and unloading, and HES.

When it comes to the organisation of the course, an overwhelming majority (82.7 %), indicated that the course they had attended was well organised, while only 8.9 % of the participants completely or somewhat disagreed. There were larger differences for the question whether the relative importance of topics in the course was clear: 23.2 % completely and 33.9 % somewhat agreed with the statement, while 13.7 % slightly or completely disagreed, and a large group (29.2 %) responded "neutral".

About half (47.6 %) completely or somewhat agreed that the other participants had fairly similar everyday work as themselves, while 21.4 % completely or somewhat disagreed, which may indicate that in many cases, it may be a challenge to tailor courses so that they are adapted to the individual students' work.

A majority (56 %) were in complete agreement with the statement that those teaching the course were competent, and another 23.2 % somewhat agreed. It is still worth noting that 11.9 % completely or somewhat disagreed with this statement, since it is unlikely that those who feel that this is the case, achieve good learning outcomes.

Respondents were divided on the question of whether the course had been interesting: 26.2 % were in complete agreement, while 19 % completely disagreed. If we add up the categories "completely agree" and "somewhat agree", however, the majority (54.8 %) had a positive attitude. A large majority (78 %) completely or somewhat disagreed that the course was difficult, while only 0.6 % totally agreed with this. Similarly, a large majority (79.1 %) completely or somewhat agreed that the course contained a lot of repetition of things they already knew, while 13.1 % completely or somewhat disagreed.

Respondents were also presented with a number of statements about teaching methods. 22 % of respondents completely agreed with the statement that there were too many lectures, and another 22 % somewhat agreed. In accordance with this, there were also many who wanted more use of pictures and video in the course; 41.1 % either completely or somewhat agreed.

The statement with which most people disagreed, was that there was too little feedback on the practical driving. 40.5 % completely disagreed with the statement, while 22.6 % slightly disagreed, and only 4.2 % completely agreed that this was the case. 32.1 % completely or somewhat disagreed that there were too few practical exercises, and 53.6 % disagreed that there was too much sharing of experiences.

Learning outcomes and goal achievement

Most of the students (67.3 %) reported that they remembered what they had learned during the course, and a majority (57.1 %) agreed they had learned things that were useful in their daily work. However, it is worth noting that a large group (21.4 %) completely disagreed with this. Approximately half (46.4 %) also reported that the course had been more practically useful than they had previously believed. For this statement as well, a relatively large group (21.4 %) totally disagreed.

When it comes to specific learning outcomes, there was greatest consensus that the course had given more knowledge about laws and regulations (63.1 % completely or somewhat agreed). Over half also completely or somewhat agree that they had gained better knowledge of HSE, and that they thought they would do a better job as scene commanders after the course.

Somewhat fewer respondents, but still a significant proportion (44.1 % and 39.9 % respectively) completely or somewhat agreed that had improved their skills in defensive driving and that they had improved their technical knowledge of heavy vehicles. For all these topics, however, relatively large subgroups completely disagreed that they had improved their knowledge. Respondents most disagreed that they had improved their knowledge about the proper use of chains: 45.2 % completely or somewhat disagreed, and 28.6 % completely or somewhat agreed with this.

When it came to changes in driving behaviour, the largest share (39.9 %) either somewhat or completely agreed that they had changed the way of driving in terms of speed adaptation and driving style, ie topics of the practical driving in module 6. The lowest proportion that completely or somewhat agreed we find when it comes to driving in the dark (22.6 %) and winter driving (24.4 %). Yet there are significant proportions – over a fifth – who report that they have to some extent changed their driving behaviour. These numbers are self-reported, and it is not possible, based on this material, to say whether this reflects actual changes in behaviour, or whether any changes have resulted in improved safety. However, for all the topics, a majority (ie over 50 %) reported that they had not changed their way of driving.

As much as 40.5 % stated that the course had improved the quality of their work, while 25.6 % had experienced improved self-esteem at work.

This study has only to a limited extent been able to quantitatively assess the achievement of objectives in terms of knowledge acquisition, beyond self-reported improvements. Information from transport companies studied in the case studies indicates that participation in periodical training courses lead to some improvement of driving style, but we have not been able to get the data to confirm this. It appears that the focus in the transport companies has been more on improvements with respect to fuel effective driving, rather than accident and injury figures.

The student survey also contained four factual questions (in the form of yes/no/do not know) about cargo securing, but since we have no control group, it is not possible to say whether knowledge is a result of completing the course. Overall, between 37.5 % and 76 % who gave the correct answers to the factual questions.

Factors affecting goal achievement

There are statistically significant differences between different groups of students in terms of experienced learning outcomes of the course. This was measured through a

composite index for perceived learning outcome. Drivers in passenger transport have by far the highest score on the index (34.9), while drivers from the distribution sector have the lowest score (25.6). The differences between the groups is significant at the 1 % level. Salaried workers have higher scores (30.4) than self-employed (26,56). The differences between the groups is significant at the 5% level. Drivers in medium-sized companies (51-250 employees) have the highest score (33.12), while those who work in the smallest businesses (1-10) has the lowest (26.75). Drivers who have attended courses for passenger transport have significantly higher scores on the learning outcome index than those who have attended courses for freight transport (35.08 and 29.25 respectively). In addition, drivers who have attended internal courses score higher (32.59) than those who have attended external courses (28.41).

We conducted regression analyses to examine what factors influence perceived learning outcomes, changes in driving styles and improved quality of work. We found that hat perceived learning outcomes could best be explained by the index for well-organised courses. In addition, positive expectations of learning outcomes lead to higher perceived learning outcomes.

Positive experiences with the organisation of the course was also the main explanatory variable for self-reported changes in driving style. Positive expectations did not contribute significantly to changes in driving style.

If the drivers' closest leader had shown interest in the course, this also contributed positively to self-reported effect on the quality of work.

Drivers working within bulk, thermo-transport and passenger transport had the most positive experience with the organisation of the courses, while timber transport scores lowest on this index. Those who had attended internal courses had better experiences with the organisation of than those who had attended external courses. Our analyses of the answers provided to factual questions about securing goods show that those who have attended courses for cargo drivers – unsurprisingly – perform better than those who have attended courses for drivers in passenger transport. However, it may look as if those who have attended combined course perform best. Among the group who has attended courses for drivers in freight transport, those who have attended internal courses perform better than those who have followed external courses, but the difference is not significant.

Recommendations

The findings above show that the periodic training is in many ways a success. One should note, however, that the number of respondents was limited, and that the response rate to the survey was low, which increases the risk of self-selection.

Nevertheless, there are still large groups among students who reported negative expectations and poor learning outcomes. Our analyses show that having attended courses for drivers in passenger transport and having experienced a well-organised course, is strongly associated with perceived learning outcomes and behavioural changes after the course. These are therefore important variables that should be studied to improve future courses. On the basis of our findings, we suggest the following focus for further work on periodic training courses:

- Investigate differences between sectors in terms of course outcomes

This should be investigated further in future research: is it the case that courses for drivers in passenger transport are made more relevant to students?

Investigate differences between internal and external courses

Drivers who attended internal courses report better learning outcomes than those who have participated in external courses. This may indicate that courses that are tailored to the target audience are perceived as being more useful.

- Specify mapping of learning outcomes

Given that a relatively large proportion of students experience learning outcomes as limited, the task of mapping or assessment of learning outcomes should probably be specified, especially for external courses.

- Focus on self-employed drivers

Self-employed drivers have more negative attitudes towards the course and report lower learning outcomes than other groups. This may partly be due to the fact that attending the course is associated with a greater financial loss for this group. This can be dealt with by, for example, allowing more flexible implementation of the course. Another approach to the problem may be to develop targeted courses for the group (eg. for different sectors). The results suggest that a fruitful approach to the problem could be to treat courses aimed at self-employed drivers, and courses aimed at salaried workers, as quite different courses, which can be treated separately.

- Consider relationships with transport companies

Managers' attitudes to the course plays a role for experienced outcomes. One possible approach for improvement of the course would therefore be to create better understanding of the importance of the course among those who act as managers in transport companies. In addition, positive expectations are associated with improved learning outcomes, and these expectations can also be influenced by managers.

- Measures geared towards instructors/teachers

While most of the students who answered the survey reported that the course instructors were competent, there was also a minority that disagreed, which may suggest that training or guidance aimed at instructors may be considered. Another possibility is to develop common teaching resources, such as compendiums on key topics, which could act as a form of "benchmarking" for students and instructors alike in terms of expected outcomes and practical goal achievement.

- More focus on specific topics perceived to be relevant

The topics first aid and crisis management and cargo security were highlighted as useful in both surveys and case studies. Increased focus on these topics in the actual courses and the information disseminated about the courses will probably contribute to higher expectations and to better outcomes of the courses.

- Study outcomes for foreign-language drivers

Unfortunately, we received too few questionnaires from foreign drivers to treat this group in particular in the quantitative survey. The case studies, however, suggest that one should look into how the periodic training works for foreign-language drivers. The interactive teaching methods used may contribute worsening learning outcomes for drivers with language problems.

- Review opportunities for improving second-time courses

Professional drivers are required to undergo periodic training every five years. Soon, some of the course participants will therefore have been through the same course before. This could create particular challenges, since it is likely that the course will be perceived as less useful than the first time it was completed.