CIECA final report to DG TREN of the European Commission concerning contract SUB-B27020B-E3-CIECA-2002-S07.14185 (evaluation of novice driver training schemes in 6 EU Member States, 2002-2004)

EU NovEV PROJECT

Evaluation of post-licence training schemes for novice drivers

FINAL REPORT: SUMMARY

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NovEV managing organisation in each participating country:

KfV – Austria
GOCA - Belgium
ECF - France
BASt - Germany
ROVG - Netherlands
RACC - Spain
RACE - Spain

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1. SUMMARY OF NovEV PROJECT

Objectives
The objectives of the NovEV project were to:

- Give countries experience in designing and implementing 2nd phase post-licence training for novice drivers
- Evaluate the effects of the training, in terms of changes in the participants' skills, knowledge, attitudes and behaviour. Effects on accident reduction could not be measured due to the small sample sizes and limited duration of the project.

Setting
Pilot projects were set up in Belgium, France, Germany, Netherlands and Spain (2). The new obligatory multiphase driver training programme in Austria was also included.

Design
The training programmes were based on guidelines established in the EU Advanced project. They included group discussions, on-road 'feedback' drives and track modules. The focus of the training was designed to be on the higher levels of driver behaviour; the methods were supposed to be coaching rather than instruction, and participant-centred activities.

Participants
Apart from in Austria, where participation is obligatory, participants in all other countries were novice drivers taking part on a voluntary basis. The exact selection criteria varied from country to country, but the participants were all young drivers (between 18 and 24) with between 4 months and 3 years driving experience. Incentives to participate ranged from an interest in road safety, to a desire to win a prize (e.g. a new car) or to reduce their probationary period by one year (Germany only).

Measurements
Before-and-after evaluation designs with control group were set up in France, Netherlands and Spain (2). Control groups were randomly selected from the original list of participants.
Belgium dropped out of the project. Austria conducted a before-and-after evaluation (no control group) and Germany carried out a process evaluation (single measurement).

Results
Some significant positive changes in self-reported driving behaviour, knowledge and/or risk awareness were found in all countries where a before-and-after evaluation design with control group was used. In one case, this significant positive change was appraised by trainers (on-road audit). A negative trend was found in one training centre in the Netherlands. Participants in the Austrian multiphase were satisfied with the training. The German programme was largely being implemented as planned. There were indications that, in at least two countries, the message of the track training was considered by participants (and seminar leaders and track trainers in Germany) to be skills-based as well as risk awareness-based (unintended effect).

Conclusions
2nd phase programmes can positively influence the behaviour of young drivers. They can also have a negative effect if implemented incorrectly. Programmes on paper can be implemented differently in practice. Proper training-of trainers and ongoing quality control is vital, particularly as far as track modules are concerned.

Recommendations
2nd phase training should address primarily the higher levels of driver behaviour, be participant-centred and spread out over time. The intervention period should ideally be in the first year of independent driving after the licence. More practical examples of useful exercises in class, on-road or track are needed. Training-of-trainers is equally as important. A training programme to develop coaching skills should be developed. Comprehensive, independent quality control is essential to ensure that the goals of the programme are delivered in practice.

2. BACKGROUND

The EU NovEV Project is a successor to the EU Advanced project on post-licence driver and rider training. It's main objectives were to measure the effects of post-licence "2nd phase" training for novice drivers and to give the participating countries experience in implementing such training.

Obligatory 2nd phase training for novice drivers already exists in Finland (1990+), Luxembourg (1996+) and Austria (2003+). Switzerland is expected to join this list at the end of 2005. The purpose of 2nd phase training is to address the 'higher levels' of driver behaviour which are thought to be largely responsible for road accidents, casualties and fatalities in this category of novice (= largely young) drivers. The 2nd phase should also act as a support mechanism during the most dangerous period of driving for novice drivers immediately after the licence. The 2nd phase should, above all, encourage these drivers to evaluate their strengths and weaknesses, analyse their experiences to date and to reflect on the major risks linked to their profile when driving.

The content of 2nd phase training has been largely drawn from theoretical models such as the GDE ('GADGET') matrix which outlines 4 levels of driver behaviour and the elements to be trained on each level (please see annex 1).

NovEV's predecessor, Advanced, laid down guidelines for countries or organisations wishing to introduce 2nd phase training for novice drivers. These guidelines are based on the preceding EU DAN project (description and analysis of novice driver training), experiences of countries where the 2nd phase is obligatory, theoretical models on young drivers and educational techniques, and first-hand experience when visiting a number of post-licence training programmes across Europe. NovEV represented the opportunity to test these guidelines in practice, and to test the assumptions made during the Advanced project. Advanced exposed the complexities of implementing a coherent and effective 2nd phase programme on paper; NovEV was the first opportunity for many countries and organisations to experience these complexities in practice. The countries that rose to this challenge were Austria, with its new, obligatory multiphase programme, Belgium, France, Germany, Netherlands, Spain (RACC club) and Spain (RACE club). All the programmes developed and evaluated in NovEV were short-term pilot projects, with the exception of the Austrian obligatory multiphase and the German voluntary 2nd phase which has been implemented nationwide and will last until the end of 2009.

3. OBJECTIVES OF NovEV AND OF 2ND PHASE TRAINING ACCORDING TO *ADVANCED*

The main objective of NovEV was to test the guidelines set down in Advanced – and sharpened in NovEV – by evaluating the effects of the 2nd phase training on young drivers. The effects were measured in terms of significant changes with regard to the knowledge, skills, attitudes and driving behaviour of the participants in these schemes. In the majority of the countries involved in NovEV, the evaluation was able to measure the changes in the above variables by comparing the situation before the training to after the training. Control groups were used in order to demonstrate that any changes in the test groups were due to the training and not to any other influences during the same time period.

The ultimate proof of the effectiveness of any form of driver training is, of course, to see a reduction in traffic accidents amongst the target group. Due to the small sample sizes (~100 participants) and short time-frame (1-2 years), such a link could not be established and was never an objective of the NovEV project. Rather, any significant sign of change with regard to risk awareness and safety-oriented changes in driving behaviour was to be judged as positive. It is also important to establish that 2nd phase training does not engender counter-productive effects. Experiences in Norway in the 80s showed that accidents amongst the target group increased following the introduction of a 2nd phase in the basic training programme. This showed that certain forms of training, particularly with regard to track-based manoeuvring skills exercises, can produce over-confidence amongst novice drivers. Such a phenomenon was highlighted in Advanced and was stressed throughout NovEV as something to avoid at all costs.

A further objective of NovEV was to give the participating countries invaluable experience in implementing 2nd phase training. This was particularly important because prior experience suggested that such a task should not be underestimated.

The EU Advanced report provided the lion's share of guidelines on 2nd phase driver training for the organisations participating in NovEV. The main body of the Advanced report provided a full analysis of existing post-licence training, highlighting best practice as well as the pitfalls and shortcomings observed before and during the project.

Chapter 10 of the Advanced report focused solely on guidelines for 2nd phase training (please see annex 2). It explains the rationale, goals, principles and golden rules with regard to such training. Following the final submission of the Advanced report, a 10-page checklist was specially designed for the trainers of 2nd phase training (see trainers' checklist in annex 14).

The goals of 2nd phase training, as laid down in the Advanced report, are to:

- *raise awareness of risks* on all 4 levels of driving behaviour (see GDE matrix)
- develop a *sense of self-awareness* amongst participants and the ability to recognise the strengths and weaknesses of oneself and those of other road users
- discuss *the theme of mobility and what it means* for young and novice drivers
- encourage *the group process, i.e.* discussing *driving behaviour* in a social context
- build on / refresh / correct *basic vehicle control skills and driving in traffic*
- help to review and correct misunderstanding of *technical and vehicle dynamic facts*
- develop *new and individual safe driving strategies for the future* (based on the risks identified at all 4 levels of driver behaviour), e.g. safe distances, relationship of driver to passenger, etc.

These goals, combined with a series of general principles and '10 Golden Rules' (see annex 2) were put into practice and tested in the EU NovEV project.

NovEV went one step further by designing a checklist for the designers of 2nd phase training (see training checklist in annex 3). This checklist includes a practical and detailed series of questions related to the design and implementation of the 2nd phase, on issues relating to the programme content, trainers and formalities (manuals, rehearsals, etc) of such training.

In terms of evaluating the 2nd phase, chapter 11 of the Advanced report focused on methodologies for assessing the effects of the training. Further information on evaluation methods was provided to the project partners of NovEV, in the form of Mika Hatakka's doctoral dissertation[1] and The Psychology Research Handbook[2].

[1] Hatakka M. (1998) Novice drivers' risk- and self-evaluations. Use of Questionnaires in Traffic Psychological Research Method Development, General Trends in Four Sample Materials, and Connections with Behaviour. 219p. Annales Universitatis Turkuensis, ser.B, Humaniora. Turku: Painosalama.

[2] Leong & Austin. (1996).The Psychology Research Handbook – a guide for graduate students and research assistants.

4. PROJECT PARTNERS

NovEV began with 7 novice driver training schemes in 6 EU countries. The countries, managing organisations, evaluators and national partners are listed in the table below:

Country	**NovEV Project manager**	**Project evaluator**	**Project partners**
Austria	**KfV** (Austrian Road Safety Board)	KfV	ÖAMTC, ARBÖ (automobile clubs)
Belgium	**GOCA** (driver testing umbrella authority)	GOCA	RACB automobile club, FOD (Federal Government Service)
France	**ECF** (French Driving School)	ECF	MACIF insurance company, French Ministry of Transport
Germany	**BASt** (Federal Highway Research Institute)[3]	BASt	DVR (German Road Safety Council =manager of 2nd phase), German Federation of Driving Instructor Associations
Netherlands	**ROVG** (regional road safety platform of Gelderland)	SWOV (traffic research centre)	CBR, VVCR, ANWB, FAM, BOVAG, NOVEM[4] Traffic Test (research company), Ministry of Transport and Waterways
Spain	**RACC** Automobile Club	INTRAS (University of Valencia)	DGT
Spain	**RACE** Automobile Club	INSIA (Polytechnic University of Madrid)	DGT, Spanish Driving Schools Association, AESLEME (NGO on brain and spinal injuries)

The overall NovEV project was managed by CIECA, the international commission of driver testing authorities. An independent evaluation advisor, Esko Keskinen, from Turku University (Finland) was brought in to assess and to advise the project partners on their evaluation designs for measuring the effects of the training.

[3] In practice, the DVR (German Road Safety Council) is responsible for the voluntary 2nd phase programme in Germany. With regard to the NovEV project, however, it is BASt which has the role of manager.

[4] CBR= Dutch driver testing organisation, VVCR= post-licence training company, ANWB= Dutch automobile club, FAM= Driving schools' Association, BOVAG= Driving schools' Association, NOVEM= Center/Novem

5. OVERVIEW OF NovEV NOVICE DRIVER TRAINING SCHEMES

This chapter of the report precedes the detailed description and analyses of the individual training programmes and evaluations of each participating scheme (chapter 6 and 7). It is designed to provide an overview of each scheme, allowing for a basic comparison of the models and designs used in each country. The guidelines on 2nd phase training (see preceding chapter) allow for some flexibility in terms of the design and implementation of the training, so small differences can be seen in each of the NovEV schemes. Some of these differences have come about for practical reasons, often for evaluation purposes[5].

Table 1 provides a general overview of the training and evaluation designs of each participating scheme. The table provides information on the:

- Training modules
- Length of training
- Selection criteria of participants
- Sample sizes (desired sizes, final training samples, and final evaluation samples)
- Evaluation design
- Control groups
- Data collection methods

Table 2 offers a more detailed overview of the contents of each training module, in addition to the profile of the trainers.

The different training programmes differ above all in terms of length: from 1 day for Spain RACC to up to 5 modules on separate days in the German voluntary 2nd phase. All projects were evaluated according to a before-and-after design with control group, with the exception of Germany and Austria (process evaluation only[6]) and Belgium (see below).

The Belgian scheme:

Due to insufficient numbers of participants in Belgium's 'Cool Driving', and to the lack of an effective evaluation design, a decision was made in January 2004 involving the European Commission, NovEV's independent evaluator and CIECA to cancel the evaluation. This decision was reported in NovEV's 2nd interim report to the European Commission in February 2004. 'Cool Driving' had begun before the NovEV was properly underway; this impeded attempts to ensure the implementation of a proper evaluation design and to give feedback on the content of the training programme, and training of the trainers. Shortcomings were found with regard to all the above aspects, and CIECA considered that there was no alternative other than to remove Cool Driving from NovEV. Some aspects of the Belgian programme were considered positively in the context of the NovEV project; these are reported in the best practice section of the conclusions.

[5] For instance, both Spanish projects accepted novice drivers who had held their driving licence for more than one year, despite the fact that the first year following the licence is the generally accepted intervention period for 2nd phase training. This is because the 2nd phase is considered to be effective only when participants have accrued a certain level of driving experience. In Spain, it is common for drivers to accumulate very low mileage in the first 2-3 years following the licence. As a result, the selection criteria for participants were extended there.

[6] In Germany, this was due to time restraints. In Austria, it is because it is an obligatory measure for all novice drivers there.

Table 1: General overview of training and evaluation designs in participating countries (see annexes 16 and 17 for French and German versions)

Countries	NovEV Project Managers	Evaluators	Training Modules	Length of training	Selection criteria	Desired sample sizes	Number trained	Final sample sizes	Evaluation design	Control group	Data collection methods
Austria	KfV	KfV	Feedback drive – Group discussion/Track training – Feedback drive	All modules to be completed in 12 months	Obligatory measure	NA	NA (obligatory measure)	Process evaluation: 1st feedback drive: 330 Track training & group discussion: 846 Wide scale survey: 991	Process evaluation with single measurement and before and after wide scale survey questionnaires	Novices under old (pre-multiphase) programme	questionnaires
France	ECF/ MACIF	ECF	Group sessions – 2 feedback drives – track training	2 days with 4 month interval	18-23 yrs old, 4-6 months after test	198 for test and control gps	124	124 test gp 87 control gp	Before and after questionnaires (7 mths after 2nd day of training)	From list of participants	Questionnaires Accident data
Germany	BASt	BASt	Group discussion - On-road drive - Group discussion - Track training - Group discussion	5 modules over 8 weeks	Any novice driver within probationary period (min. 6 months experience)	NA	300+ as of end August 2004	70	Process evaluation with single measurement	-	Questionnaires
Netherlands	ROVG	SWOV/ Traffic Test	Feedback drive – Track training – Group discussion – Feedback drive	Single training day	18-25 yr old new drivers, around 6 months after test	200 test gp 100 control gp	99	99 test gp 28 control gp	Before and after questionnaire survey & driving audits (1 mth after training)	From list of participants	Questionnaires driving audits
Spain RACC	RACC	INTRAS	Group discussion – track training – feedback drive (order varied)	Single training day	18-24 yrs old less than 3 yrs driving experience	256 test gp 256 control gp	187	124 test gp 114 control gp	Before and after questionnaire survey (6 mths after training)	From list of participants	questionnaires
Spain RACE	RACE	INSIA	Group discussion – track training – feedback drive	Single training day	1-2 years since test, min. 5000km	198 test gp 198 control gp	77	77 test gp 77 control gp	Before and after questionnaire survey and driving audits (2 audits after training, last at 6 mths after training)	From list of participants	Questionnaires driving audits

Table 2: Detailed overview of content of training modules and profiles of trainers

Countries	Group session: content	Length	Group session: trainer	Feedback drive: content	Length	Feedback drive: trainer	Track training: content	Length (hours)	Track training: trainer	Group sizes per trainer
Austria	Fatal accidents amongst novice drivers Evaluation of individual strengths and weaknesses Adoption of individual strategies for safe driving	2 X 50 minutes	Psychologist	Hazard perception Interaction with other road users Discussion on above using a standard feedback form filled in by trainer	50 minutes driving (X 2)	Driving instructor	1 hour theory: driving dynamics and safety features in cars 5 hours practice: demonstration and experience (seating position, braking, cornering, over and understeering, safety margins, viewing technique)	6	Track trainer (OEAMTC, ARBO, etc)	6-12
France	Presentation: man, vehicle, environment Visual and perceptive illusions Drugs and alcohol: including alcohol simulation test Self-reflection and discussion on training	4 hours spread over 2 days	ECF 'animateur'	Hazard perception Decision-making Discussion on above with trainer and 5 other participants in people carrier.	20 minutes driving per person (X 2)	ECF 'animateur'	Discussion on cars of participants (safety features, maintenance, accessories) Braking distance demonstration Loss-of-control simulator	2	ECF 'animateur'	6
Germany	Exchange of experience Personal strengths and weaknesses Driving context: passengers, distractions, time pressure, etc Alcohol and drugs Discussion on training Personal strategies for safe driving	4,5 hours spread over 3 days	Specially qualified driving instructor	Driving and observation of normal driving style Practising situations already identified as weakness Energy and environmentally-friendly driving Discussion on above with trainer and total of 3 participants	60 minutes per person	Same as group session trainer	Braking exercises (emergency braking, braking distances, slippery surfaces, braking with passengers) Driving around bends (comfortably, with passengers, too fast)	4	DVR accredited track trainer	6-12
Netherlands	Based on video sketches of typical novice driver situations (distractions, peer pressure, multi-tasking, tailgating, etc) Spontaneous discussion on the basis of sketches	1 hour 15 minutes	Track trainer	Driving and feedback from trainer based on normal driving style First drive accompanied by total of 2 participants (second only 1) Discussion between trainer and 1-2 participants on basis of self-assessment and trainer assessment	1 hour per person	Instructor / examiner	ABS/non-ABS experience and braking distances Demonstration of braking distances Driving onto the verge Aquaplaning (demonstration) Driving around bends Safety margins	2	ANWB / VVCR track trainer	8-12
Spain RACC	Presentation on traffic accidents Mistakes and offences: 2 causes of accidents Risk factors for novice drivers Use of passive safety systems (e.g. seatbelts)	1,5 hours	INTRAS seminar leader	Driving and feedback from trainer based on normal driving style Drive accompanied by total of 3 participants Discussion between trainer and 3 participants on basis of trainer assessment and participant-observer assessment	20 minutes driving per person	Driving instructor	Emergency braking exercises (ABS/non-ABS, braking distances, effects of slippery surfaces) Slalom (multi-tasking, driving under pressure, distractions)	1.5	RACC track trainer	6-12
Spain RACE	Accident data Perception of risk Lapses in concentration Speed and its relation to accidents Objects inside the vehicle Alcohol, Drugs and their consequences Security Features Other road users Effect of age, of young people between 18 and 24 years old What to do in case of an accident	4 hours	RACE official / AESLEME rep.	Driving and feedback from trainer based on normal driving style Drive accompanied by total of 3 participants Discussion between trainer and 3 participants on basis of trainer assessment and participant-observer assessment	20 minutes per person	Driving instructor	Seating position Slalom Emergency braking Braking distances / safety margins	2	RACE track trainer / AESLEME rep.	9

6. THE SCHEMES IN DETAIL: TRAINING AND EVALUATION

Chapter 6 features detailed studies of the training and evaluation in each country, in the form of individual reports submitted by each country involved in NovEV. Chapter 7 provides 1-3 page summaries of the reports in this section.

7. SUMMARY AND ANALYSIS OF EACH TRAINING PROGRAMME

Due to the length and complexity of the individual country reports in the preceding chapter, this chapter aims to provide a summary overview of each programme, in addition to an analysis of the training programmes including best practice examples selected by the project manager. The analysis component relates only to the training itself, not the evaluation (see next chapter).

7.1 AUSTRIA: Executive Summary

Participants
Due to the fact that the multiphase system for novice drivers has been obligatory in Austria since 1st January 2003, a deliberate selection of participants was not necessary. Therefore the group samples for this project were chosen randomly.

Training programme
The second phase training in Austria consists of the following modules:

- Two on-road feedback drives (before and after the track training)
- A track training (on a closed track)
- A psychological group discussion

Trainers
The on-road feedback drives for novice drivers is accompanied by driving teachers, the track training is led by instructors and the group discussion is conducted by psychologists.
All involved professions have to fulfil several requirements (e.g. education, age, etc.) which are defined by law.

Evaluation design and data collection methods
The evaluation design (see Table 1) is based on three levels: a process evaluation for both trainers and participants with regard to the track training and the group discussion, a wide scale survey concerning driving attitudes, beliefs and other self-reported data and statistical data from a file of the Central Licence Register concerning all novice drivers in Austria. The predominant collection method was the usage of questionnaires.

Table 1: Evaluation design and data collection methods

	evaluation type	data collection	when
1a	Process evaluation: participants	questionnaire for MPE (="Multi-Phase-Educated") participants	before & after track training
1b	Process evaluation: trainers	questionnaire for MPE trainers	after track training
2	Wide scale survey	control group (SE="standard" education) from "BASIC"(a previous EU-project): questionnaire intervention group (MPE): questionnaire	before and after the introduction of the multiphase system
3	CLR data	Central Licence Register:	Cut-off date: 1st of April 2004

Analysing methods
For this evaluation only non-parametric tests were used since basic requirements for parametric test were violated.

Results and conclusions
Novice drivers who completed at least two modules of the multiphase system were generally satisfied with the whole measurement although it is obligatory. This circumstance can be interpreted as evidence for high acceptance the multiphase system in Austria.

For the track training day, most participants mainly expect to learn to master risky situations better. Also the practical part of the track training day was assessed as most applicable for every day driving. Furthermore, the results show a different view on the importance of several skills between instructors and participants: For example, the ability to correct a skidding car was rated significantly more relevant for real traffic for novice drivers than for instructors, although all skills were considered as very important for safe driving. Nevertheless, it can be concluded that participants may have received a counterproductive message concerning traffic safety during the track training, i.e. that safe driving is based on manoeuvring skills rather than on an anticipatory driving style.

The results of the wide scale survey show that the reduction of practical and theoretical hours of the standard education didn't have statistical significant influence on the pass-rates (number of attempts) of the driving exam, neither on the theoretical test nor on the practical test.

No big differences were found between standard-educated and multiphase-educated novice drivers concerning self assessment of driving style and driving behaviour, offences or accidents. The only differences occurred regarding female persons: they described themselves as more careful drivers and reported less speeding offences.

7.2 FRANCE: Executive Summary

The participants
396 young members of MACIF insurance company, aged between 18 and 2 years old and having between 4-6 months driving experience, participated in the NovEV project. These young drivers were split into 3 groups : 124 in the experimental group, 87 in the control group and 124 in control group 2. Control group 2 was unaware that it was being monitored, whereas the other two groups had expressed an interest in participating actively in a road safety training programme.

The training
Experience gained in the past by ECF suggested that the programme should be spread over 2 days. These two training days were separated by a 4 month interval. This allowed for more intensive debates and exchanges between the participants.
The training programme contained information, and discussion on different risks (either subjective or objective). It alternated between workshops, on-road sessions and track-based modules. The programme takes into account the hierarchical model of driving behaviour and is particularly focused on levels 3 and 4 of the GDE (goals for driver education) matrix.

The trainers
The whole programme depended heavily on the quality of the discussion and on the pedagogical quality of the training. The 5 trainers used were road safety professionals who were qualified

and experienced in giving training to groups of young drivers. They trained in pairs during the entire programme. In order to help them and to retain a coherent approach amongst the different trainers, a trainers' guide was developed especially for this programme.

Feedback on the training
The organisers, trainers and participants all rated the experience positively.

The evaluations
The main objective was to measure and to compare changes in skills, attitudes, knowledge and driving behaviour amongst the participants who actually took the training, and those who did not.
The participants were monitored over a period of 11 months using specially designed questionnaires, as follows :

- Pre-training questionnaire (experimental and control group 1)
- Post-training questionnaire (experimental and control group 1)
- MACIF accident monitoring (for the 3 groups)

Results
Positive changes in the experimental group :
Significant positive change in awareness of risks linked to driving habits (MALES)
Significant positive change in driving skills for defensive driving (MALES)
(Slight) trend towards less frequent risky driving situations (MALES)

Stability of control group.

Conclusion
We can reasonably conclude that the development of the two groups shows an increase in risk awareness in the experimental group. This helps to delay the phenomenon of overconfidence which is so often observed amongst novice drivers.
Otherwise, the control group, which was followed statistically but not involved in the training, remained stable in its results, despite its clear investment in road safety (by wanting to take part)

7.3 GERMANY: Executive Summary

In April 2003, a voluntary second-phase training programme for probationary (novice) drivers (FSF) was introduced in Germany by law as a pilot project. Between 2003 and 2010, the FSF project aims to evaluate how, if at all, it contributes to reducing novice drivers' accident risk. To date, 13 out of 16 federal states in Germany have joined the pilot project and have started the training which offers an incentive in the form of a one-year reduction of the probationary period for the novice drivers who participate. The FSF courses actually started in spring / early summer 2004.

Before then, some preparatory work had already been carried out by the DVR (Deutscher Verkehrssicherheitsrat = German Road Safety Council). The DVR developed the manuals and subsequently trained the trainers to coach the seminar leaders (driving instructors). When the training was introduced in practice, approximately 1,500 seminar leaders and 200 track instructors had already been trained to implement the FSF model. In the first five months of training, about 200 novice drivers took part in the FSF-courses. The training is composed of five sessions, including three group discussion sessions, one 'training and observation' drive on public roads, and a track-based training programme. Overall, the demand for the courses within the target group of young drivers has been rather low so far.

BASt collected the addresses of all people involved in designing and implementing the FSF programme so far. Six quasi-identical questionnaires were developed for the six groups and sent to the persons involved: programme authors, the trainers of the trainer, the seminar leaders and track instructors, and the participants (novice drivers). Data collection took place in June and July 2004. Due to the tight deadline, no pre-testing or follow-up-testing could be performed. The main focus of the evaluation was on the perception of the training itself among the different categories of people involved and on to what extent the programme is transferred to the participants in such a way the programme authors intended it.

The German evaluation project was a process evaluation with a single measurement. Different views on the programme with regard to the organisation, implementation and achievements were collected from the six different groups involved, such as the course designers and the participants of the programme. The effectiveness of the programme for the young drivers was also analysed by comparing the learning goals set down in the manual with reported self-assessment and an evaluation of the participants' success in implementing the goals of the training in practice.

The results of the study provide an indication of how accurately the FSF training concept was implemented in practice. The results show that most of the programme is being performed as the authors intended. The task reports and ratings of the importance of the programme modules correspond closely to the authors' concept and manual, the implementation as carried out by the trainer, and the participants' experience with FSF. Similar statements on the FSF modules were found in the six groups surveyed. The training was generally rated positively by the participants. The participants claimed to have developed and used several intellectual and behavioural strategies for safe driving, which is the main aim of FSF.

Attention should be turned to the fact, that participants reported an unwanted improvement of their abilities to master difficult traffic situations. Also the training of the track instructors should be revised because they perceived and implemented the track training course with other goals and intentions than was specified by the authors.
Further efforts to motivate novice drivers to participate in FSF should be made. Suggestions on how to do this are made in the conclusions.

7.4 NETHERLANDS: Executive Summary

Participants
After an appeal by mail and telephone, 376 young novice drivers agreed to participate in the project. Unfortunately, during the course of the project, many of the participants dropped out. Out of 376 young drivers that initially agreed to participate, only 127 (33%) completed all parts of the project.

The participants who did not want to participate, those who dropped out, and those who finished all parts of the project were compared for a number of variables. This led to the conclusion that there was no major problem with selective drop-out. Naturally, the groups did differ on at least one aspect, namely for one reason or another some completed the project and others did not.

Training programme + objectives
The second phase training consisted of the following modules:

- *An on-road feedback drive*
  The objective of the feedback drive was to present the driver with feedback about his driving performance. It was different from instruction drives, as the instructor confronted

the driver with his "expert" observations in order to make the participant "think" and reflect. So he did not tell the participant what to do, but encouraged him to draw his own conclusions. During the first feedback drive the participant and instructor were accompanied by a second participant who rode along as a passenger. The drive was followed by a discussion between instructor, passenger and driver.

- *Training on a closed track*
  The objective of the track training was for participants to experience the limits of their skills in vehicle control and to share these experiences with other group members.

- *A group discussion*
  The objective of the group discussion was to stimulate recognition of potentially hazardous situations in rather "normal" social situations. The discussion was based on video sketches, depicting typical situations (incidents rather than accidents) involving young drivers (men and women). The moderator encouraged the youngsters to reflect on the events.

- *An evaluation on-road feedback drive (about a month later)*
  The objective of this second feedback drive was the same as the first feedback drive, that is to present the driver with feedback about his driving performance.

Evaluation design and data collection methods

The effect of the track training and group discussion was studied using a before-and-after design with a control group. Participants were randomly assigned to the control or the experimental (treatment) group. The *control group* participated in both feedback drives. In addition to the feedback drives, the *experimental group* also participated in track training and in a group discussion.

Evaluation design and data collection methods

	Training programme		**Instruments**
	Experimental	*Control*	
December 2003 **Pre-test** *One month before training*	Questionnaire	Questionnaire	**Questionnaire** Contained items on risk awareness, self-assessment of skill, and situation judgements
January 2004 **Training day**	Pre-test feedback drive	Pre-test feedback drive	**On-road observation form** An assessment tool to describe the driving performance of a driver. The driver himself and the driving instructor completed these forms after the feedback drive. **Driving Assessment** Assessment by the instructor of the quality of driving in three fields: vehicle control, driving skills, and calibration skills
	Track Exercises		
	Group discussion		
	Questionnaire	Questionnaire	**Questionnaire** Contained items on risk awareness, self-assessment of skill, and situation judgements

		On-road observation form An assessment tool to describe the driving performance of a driver. The driver himself and the driving instructor completed these forms after the feedback drive.
Post-test feedback drive	Post-test feedback drive	**Driving Assessment** Assessment by the instructor of the quality of driving in three fields: vehicle control, driving skills, and calibration skills
		Satisfaction questionnaire This questionnaire contained questions on how satisfied participants were about the different components of the training day and the feedback drives.

Results & Conclusions by instrument

Satisfaction questionnaire
Young drivers were not motivated to participate on a voluntary basis in a second phase training. However, once in the course, novice drivers were enthusiastic about the training day. Within the training day, the group discussion was rated as the least attractive part, while the feedback drive was about as attractive and useful as the track training. The message of the second-phase training was well-understood. There were no indications that the young, novice drivers overestimated their skills, as a result of the training.

Questionnaire
The questionnaire contained items on risk awareness, self-assessment of skill and judgements of traffic situations on photo. The results from the questionnaire are somewhat unclear; some effects of the training were found, but not consistent and not always in the expected direction.

In line with expectations, the items concerning risk awareness confirmed that young drivers do not seem particularly concerned in general, and especially not about driving too fast. A least 60% of the respondents are not concerned about driving too fast. On the other hand, it turned out that young drivers are, overall, rather confident about their driving skills. At least 30% of the participants believe they are (very) strong in all skills, and in some skills more than 60% believe they are (very) strong.

It was expected that these opinions would improve as a result of the training day. Detailed analyses showed no effect of training on these variables. Further research is needed to demonstrate that the questionnaire itself is sensitive enough to register changes as a result of a short term intervention. The fact that there were significant gender differences in these issues, led to the conclusion that this part of the questionnaire possibly measures more stable attitudes or personality traits (which could not be changed with a one-day training course or within the period of a month).

On-road observation form
After the feedback drive, an on-road observation form was filled out by both the instructor and the participant, which contained items on driving skill and assessment of complexity of the driving task. The young drivers' assessment of their own driving skills and task complexity did not change as a result of training. This implies, that the objective of the course to inform young drivers about their limited skills and the high complexity of the traffic situation did not result in a more cautious self-estimation. On the positive side, this result indicates that the training day and more in particular the track training did not lead to a higher estimation of skills and a lower estimation of the complexity of the driving task.

To study the accuracy of the driver's self image, their self-estimation scores were compared with the instructor's assessment of the young driver's competencies. On "vehicle control and general skills", instructors and participants did not differ in their assessment neither on the pre-test nor on the post-test. As expected on "safe and defensive driving" in the pre-test, participants rated their performance higher than the instructor did. As the course was directed at improving self-assessment skills, it was expected accuracy to improve in the sense that their assessment would be more in line with that of the instructor after the training. This was not the case.

Generally, from the results from the on-road observation form, it can be concluded that while the instructors did see some improvement as a result of the training, the participants did not.

Driving Assessment
Task conditions between control group and experimental group differed systematically on the pre-test. Therefore, it cannot be excluded that the observed difference in task performance between control group and experimental group is a reflection of these test conditions rather than a significant difference between the two groups.

Within the experimental group, the performance of the participants of the two different training locations differed significantly. This, despite the fact that at both locations the participants had received exactly the same training (on paper). Where performance at location A was improved by training, driving performance at location B got even worse. Because the test conditions for the participants of the two locations were the same, this result is reliable.

The process evaluation indicated that despite their organisation's involvement in the NovEV project, the trainers from location B did not share the same opinion on the definitions of a "useful" training. As a result, these trainers had to give a type of training they did not believe in. This could have (subconsciously) affected the way they gave the training, or the way the participants perceived the training. Research has shown (ADVANCED, 2002) that any education, looses its strength if the educator is not absolutely convinced about what he/she is teaching. Moreover, that the effectiveness of the education is largely dependent on the person, the beliefs of the teacher, and his behaviour (Hale and Glendon, 1987). For a more detailed discussion of the role of the "teacher", see the ADVANCED report.

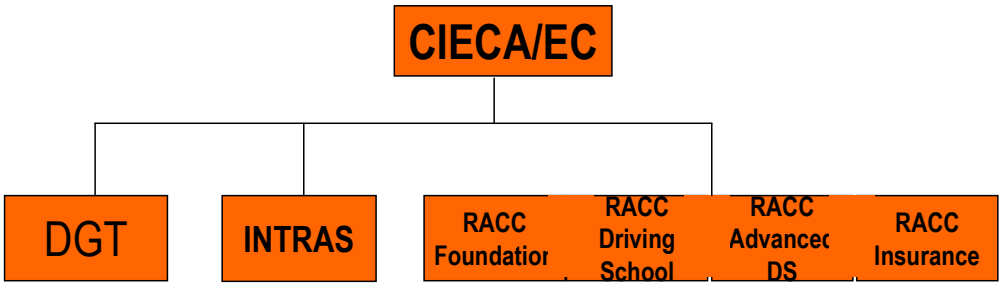
General conclusions
In the Dutch pilot, the recommendations of the ADVANCED report were closely followed with respect to the content of the course and the evaluation of its effects. However, as stated earlier, in practice these recommendations were not always followed in one of the two locations.

In this study, it has been demonstrated that, on the one hand, the second phase is recognized by the participants as a useful and necessary part of their driving career. On the other hand, the high refusal rate demonstrates that youngsters are not interested in participating on a voluntary basis. The effects of the course are limited, and can even be negative, if trainers are not fully equipped to give the course, indicating that a much greater effort is needed in training second phase trainers than has been the case in this project.

7.5 SPAIN RACC: Executive Summary

The NovEV pilot trial of the RACC Automobile Club took place during the period between January 2003 and May 2004, and involved 621 participants from three provinces of Spain: Madrid, Valencia and Barcelona. The aim of the project was to evaluate a post-license training course in order to assess if it can positively influence the behaviour of novice drivers. An evaluation strategy was planned, based on a experimental research design with experimental and control groups assessed at two points, before and after the training, with regard to a number of variables related to safe driving.

The partner structure that RACC built in order to develop and implement the NovEV pilot trial was led by the European supervisor, CIECA, whereas at a national level, the traffic authority DGT (Dirección General de Tráfico) supported the pilot trial and will use the results for the future development of post-license courses. The training design and its implementation at national level was managed by the RACC Automobile Club and INTRAS (University of Valencia).



NovEV pilot trial: structure of partners

In January 2003 a massive marketing campaign by post was addressed to more than a thousand young drivers who were all policyholders with HDI car insurance company. These potential participants fulfilled the following specifications: aged 18 to 24, less than 3 years driving experience and living in Valencia, Barcelona or Madrid provinces. The letter informed them about a pilot trial in which they were invited to participate and explained what it involved (at least two tests over a one year period) and what would they get (possibility to take a training course, and to win a car in a lottery).

Phone calls followed the marketing campaign in order to recruit participants and to conduct a short interview-questionnaire (see 1.7, selection questionnaire) that would provide the basic background from each participant. The information taken from the phone questionnaire supplemented the information from the insurance company database which provided the basic variables needed to segment the sample into two balanced groups in terms of age, gender, educational background, driving experience and vehicle use.

At this stage two groups were formed: a control group and a test group that totalled 621 people. A pre-test (see 1.7; pre-test) of driving behaviour was sent to them and 350 answered within the deadline (183 from the test group and 167 from the control group). Due to an unexpected high rate of dropouts, the participation in the project was extended not only to HDI insurance holders but also to other members of the public, mainly recruited at driving schools in Valencia and Madrid.

The training days took place in Barcelona (3 days), Valencia (3 days) and Madrid (1 day) in July 2003, involving the 183 members of the test group. It consisted of a one day training during which all participants had to take three areas of training: track training, on-road feedback drive

and psychological workshop. Before the training began, the RACC conducted a rehearsal day in order to train the trainers and to improve certain organisational aspects.

The track part consisted of two parts: performing emergency braking with and without ABS on slippery and rough surfaces on one hand, and experiencing an exercise in which participants were distracted by mobile phones and peer pressure. The on-road section combined urban and rural roads on a pre-defined circuit in which each participant had to drive for 20 minutes. In the workshop section, the most important sociological and psychological aspects that affect young drivers were introduced and discussed. Every session except the workshop had a feedback session during which the trainees had the opportunity to interact with the trainers and to have their questions answered.

According to the project guidelines, a period of 5 months then elapsed during which no contact was had between RACC and the participants, in order to allow for consolidation of any attitudinal improvements as a result of the course among the members of the test group.

During the period from December 2003 to end of January 2004 the post-test (see 1.7; post-test) was sent to the 350 people still involved in the NovEV pilot trial. The final participation figures after dropouts from the pre-test and the post-test was 263 novice drivers, namely 126 from the test group and 137 from the control group, of which 66% were from the HDI insurance database and 33% were from driving schools.

During the period from January 2003 to March 2004, any reported accidents were monitored amongst participants from the HDI insurance database. Despite being an unstatistically consistent result, the query showed that 4 participants from the control group were responsible for an accident, whereas only 1 participant from the test group was responsible for an accident.

Two basic methods have been used to collect the data from participants: phone interviews (recruiting questionnaire) and post (pretest and post-test). One last source of information has been the database from HDI.

After all the data was collected, a comprehensive statistical analysis was carried out on the data from the final sample of participants that completed the two driving behaviour tests. The original data provided by the HDI database and the recruiting questionnaire were also used to perform the analysis by providing segmentation variables and to detect any self-selection bias.

The evaluation strategy was based on an experimental research design with experimental and control groups assessed at two points, before and after the training, according to a number of variables related to safe driving. An univariate ANOVA model was used to analyse the data of our mixed between-within design for each one of the five scales considered.

Data analysis results showed statistically significant differences between the control and test groups for the “Skills for Careful Driving” scale, meaning that the mean score in this scale was higher for the test group than for the control group after the training. This result goes in the expected direction given that, as reported in earlier studies, self-evaluation of skills for careful driving is inversely related to accidents. Positive differences between the test and control groups were also found for the other four driving behaviour scales, but these differences did not appear to be statistically significant, so they could have occurred by chance.

Finally, data analysis of the course feedback obtained from the participants of the test group showed a rather positive evaluation of the course and the course results. The first conclusion is supported by mean scores over 4 (in a 1 to 5 scale) for the items related to the course organisation, contents and tuition; the latter through the mean scores for the improvements which were reported by participants, which were significantly higher for the items related to self-awareness about risks and bad driving habits than for driving techniques and skills.

7.6 SPAIN RACE: Executive Summary

The general target of this study was to evaluate scientifically the influence of second phase training courses on novice drivers (once the driving licence has been obtained and some driving experience accrued) and to measure any changes related to skill, knowledge, behaviour and attitude as a result of the course.

The sample participating in the study was composed of 154 subjects. This sample was selected according to the following selection criteria: category B licence holders for between one/two years and a minimum of 5.000 km of driving experience. Once selected, the participants were randomly assigned to two groups:

- Experimental group (77 participants)
- Control group (77 participants)

The experimental group took part in the training. The course contents were focused on a few very clear messages, especially oriented to road safety. The Training Programme was composed of three different modules: class (theoretical contents, discussion), track (practical contents), real traffic (assessed driving). The control group did not participate in the training. The aim of the control group was to establish the base line in order to determine which part of the change achieved in the experimental group was due to the training and which part was due to the driver's natural development.

Evaluations were conducted at 3 stages with a view to establishing the differences between the two groups over a period of six months. The first evaluation (pretest) took place before the training programme in order to establish a base line and to be able to compare later evaluations. Two further evaluations followed after the training programme: after a week (to evaluate any results over the short-term) and after six months (to evaluate results over the medium to long term).

The following data collection methods were used for this purpose: a road safety questionnaire and an evaluation in real traffic (driving assessment on public roads) in order to compile as much data as possible related to current knowledge, skills, behaviour and attitudes of the participants. The data analysis methods used in the study were a descriptive analysis and ANOVA.

In the on-road evaluation, a significant improvement in general driving skills within the experimental group was found as a result of the training. In the attitude variable, no differences were found. According to the questionnaire feedback, there was a significant improvement in knowledge within the experimental group as a result of the training.

CONCLUSIONS:

Analysing the results obtained, we can conclude that there was a significantly higher change in knowledge, skills and behaviour (in the attitude variable the results are not so favourable as expected, so no conclusions can be drawn from these) in the experimental (training) group than in the control group. Therefore, the training was seen to have a considerable effect on participants in the short and medium term (6 months). We can thus conclude that there was a positive effect of the course on novice drivers.

In the skills and behaviour variables we found that:
The training improved the participants' driving skills and behaviour in comparison to the control group

In the attitude variable we found that:
No differences were found between the results obtained in the experimental group and the control group

In the knowledge variable we found that:
The training improved the road safety knowledge of the participants in comparison to the control group.

7.7 Analysis of individual training programmes

With the benefit of hindsight, a number of important lessons have been learned with regard to the design and implementation of 2nd phase training. The following passages present the strengths and weaknesses of each of the schemes evaluated during the NovEV project. The vast majority of these observations come from the scheme managers themselves; others have been noted by CIECA and / or the NovEV independent evaluation advisor. Ideally, the training programmes could have been analysed in the context of the GDE matrix in order to see how far the Advanced guidelines were being respected. In practice, however, this is a complex and subjective process (and the differences between the programmes on paper were small) so it was decided not to do this.

7.7.1 Austria

The new, post-licence component of the Austrian multiphase is based on the Finnish approach but is supplemented with an additional feedback drive after the track training/ group discussion, as well as before. This design, in addition to the intervention period (all 3 modules within 1st year of driving licence) is very positive. Entering into more detail, however, the balance between the different modules, particularly with regard to the psychological group discussion and the track training, appears uneven. Only 2 hours is allocated to the group discussion, compared to 6 hours for the track training (1 hour theory and 5 hours practice). Furthermore, the results show that many participants claim that a major focus of the training was on mastery of vehicle control – this is not an objective of the training. The feedback drive has been difficult to implement properly, due to the fact that by the time the multiphase was introduced, no proper training had been given to driving instructors on how to carry out this module, and the driving assessment form to be used was still in the design phase. Initial feedback indicates that driving instructors are operating in the feedback drives much as they would during normal, pre-licence lessons (i.e. instructing rather than coaching). Based on its design and content, the group discussion should be praised due to its focus on participant-centred methods and attention to the higher levels of driver behaviour.

In terms of the overall management of the Austrian multiphase, two weaknesses can be observed. Firstly, there is still no handbook to ensure the quality and coherence of the training given by a panoply of different training organisations. Individual training organisations may have their own handbooks but these are likely to differ considerably in practice. This means that the training itself is probably different across the country. Secondly, the quality assurance committee includes the organisations that are being controlled (namely OEAMTC and ARBO). CIECA considers it important that the quality assurance of a 2nd phase programme be independent from the organisations directly involved in the training.

7.7.2 France

As one of the pilot projects in NovEV, France/ECF is to be commended for adopting a full 2-day training programme with a 4 month interval between. This structure allows not only for a longer period of training and instruction but also an extended support structure for novice drivers following the licence. ECF benefited from the considerable experience and skills, particularly with regard to coaching, of trainers who have been trained first and foremost as ‘animateurs’ or group leaders for young people, in addition to holding driving instructor qualifications. France was also the only country where trainers worked in pairs during the group discussion and track training sessions, and to good effect. The majority of the themes discussed in the group discussion seemed sound, despite some initial reservations expressed by CIECA on

specific issues (presentation of road safety policy, session on visual illusions…). The track training was well designed and implemented, there was no trace of manoeuvring skills training and the discussion amongst participants about each other's vehicles was innovative. The feedback drive was not seen in practice: 6 passengers and a trainer drove on open roads in a people carrier. ECF felt that the immediate comments given by the passengers to the driver allowed for a precise evaluation of the driver's driving style.

Two small but important observations for the future were made during the training. The first is that the audit on the second training day should be replaced with a feedback session on the experiences accrued by the participants during the intervening period between the training days. The second is that, in order to optimalise the conditions for learning during the track training, some form of shelter is necessary next to the track (poor or cold weather, too hot weather, etc).

7.7.3 Germany

A considerable amount of thought and research, resulting from a number of years experience with post-licence driver training, has led to the creation of a very sound voluntary 2nd phase programme in Germany. Positive aspects include strictly defined manuals for trainers, high and relevant trainer qualifications, considerable ground covered in the 5 modules, and more attention to level 3 and 4 (GDE matrix) issues than in other NovEV schemes. The course is also very interactive (including role plays) and is the only course in NovEV to offer the opportunity to participants to request specific training on issues of personal concern. Importantly, the training puts a high emphasis on the development of personal strategies for safe driving.

The course is long and spread out over time. This is both positive and negative. Due to its voluntary nature, the standard 8 week programme may deter young drivers from registering. There is also concern that the incentive to participate (a one year reduction in the probationary period) is attracting drivers who register solely for this purpose. Young traffic offenders (who have already had their probationary period extended by two years) are overrepresented in the voluntary 2nd phase programme at this stage[7], although this may be explained by the publicity made about the FSF in the traffic offenders seminars that these drivers were obliged to attend.

One other potential issue of concern is that track trainers, seminar leaders and, consequently, participants may not have the same understanding of the goals of the track training as the authors. A statistically significant group said they were better at mastering dangerous situations as a result of the whole measure. The improvement of manoeuvring skills was not a major objective of the track training, so this potential for overconfidence amongst participants should be monitored over time and the goals of the practical safety exercises should be communicated more clearer to the trainers and the seminar-leaders in the way the authors wanted. (This incorrect perception of the aims of the track training exists despite a great deal of effort being spent training trainers and establishing detailed trainer handbooks).

7.7.4 Netherlands

Despite the considerable preparatory work on paper, the ultimate outcome of the Dutch Young Drivers' training was mixed. The management 'blueprint' successfully established the framework conditions for the training, and innovative initiatives were taken in the build-up to the training (development of the website, traffic situation diaries, self-assessment as part of the driving assessment and of the video containing sketches of typical novice driver situations). The problem, in one training location in particular, was the translation of the work on paper into

[7] Such drivers account for about 25% of participants in the voluntary programme, compared to around 5% nationwide.

practice, (as was the inclement weather which seemed to discourage many participants from attending the training). A lack of finances meant that only (very) limited training-of-trainers was available, and this shortcoming was sometimes noticeable in practice. For similar reasons, rehearsals were not held, thereby preventing any opportunity for the project management to identify and address weaknesses before the training began. In addition, nobody from the project management systematically attended the training days, in order to monitor the functioning of the programme, give feedback, etc.

The experiences in the other training organisation, where positive results were recorded, were far more successful. There, the objective of the programme was realised – the participants' perception of their risk awareness was more in line with reality as a result of the training (better 'calibration').

Satisfaction ratings were generally high, particularly with the feedback drives. The one exception was in the training location where the negative results were registered. The trainers there were not properly trained according to NovEV / Advanced guidelines and this situation was exacerbated by conflicting messages from the management who were not convinced about the Advanced approach to 2nd phase training.

Considerably more training, monitoring and rehearsing, including better coordination and follow-up between the project managers and the course providers, will be necessary to ensure the successful introduction of a nationwide 2nd phase programme. It may also be useful to note that a tendency to involve a large number of organisations may serve to undermine the coherence and uniformity of the training in practice. The overall experience of the programme in the Netherlands is positive for two reasons: firstly, one training organisation had good results, and, secondly, the problems encountered in the other training organisation are useful lessons for the future.

7.7.5 Spain RACC

In many ways, RACC paid meticulous attention to the Advanced guidelines in practice and developed a tight, well-managed 1-day training programme, which has the advantage of being mobile. The full programme was rehearsed and modified accordingly, before the actual training began. One of the two track experiences was particularly innovative (i.e. the slalom focusing on level 3 issues) and experienced seminar leaders (psychologists) were used in the group discussion module. The presence of young trainers was also positive.

More time could have been allocated to each participant during the feedback drive, and the feedback from the trainer could have been more regular and forthcoming (highlighting both strong and weak points). Improvements in the group discussion are mostly on the micro-level: adding a break, encouraging more interaction between the participants and limiting the number of subjects but entering into more depth. The track trainers and feedback drive trainers would benefit from more coaching training (there was a tendency rather to 'instruct'). Following the training, a decision has been made by RACC to lengthen each module in future trainings to 2 hours apiece, instead of 90 minutes.

If there is one obvious weakness with the RACC training, it is the limited length of the training (1-day only). Whilst CIECA understands the practical structure of the training from a commercial perspective, it would probably be more effective if the intervention period could be lengthened, for example, by adding a self-evaluation questionnaire to be filled out by the participant some time before the training.

7.7.6 Spain RACE

The RACE course was different from the other NovEV schemes in 3 main respects:

1. a disabled (and young) trainer was used from a Spanish NGO raising awareness of spinal and brain injuries (largely due to traffic accidents)
2. the group discussion lasted far longer than the track training (4 and 2 hours respectively)
3. The support period for the young driver was considerable, in that driving audits took place on two separate occasions following the training

The rehearsal revealed that too much information was being presented to the participant, so the RACE training focused on a smaller number of simple messages. A detailed course manual was made available to the participants to encourage on-going learning. The track training lacked momentum due to a lack of cars, but this is more an organisational issue than a substantive one.

As was the case with the French and RACC trainings, the RACE programme benefited from the presence of the same official at each level of the process: the design, management and implementation of the training. This ensured coherence and uniformity in the programme.

7.8 Best practice examples from NovEV programmes

On the basis of the Advanced guidelines, and including the principles of the GDE matrix (in particular the levels 3 and 4 and the self-evaluation column), CIECA has selected examples of best practice from the NovEV training programmes. These examples include not only activities in the training programme itself (content level), but also examples of good practice at a management (organisational) or conceptual (design) level.

7.8.1 Design level

- The Austrian psychological group discussion. See pages 6-8 of the Madrid meeting minutes in annex 4, meeting 2. An English or German version of the trainer's guide is available at CIECA on request.
- The quality control system in the German 2nd phase programme[8]

7.8.2 Organisational level

- The presence of a specially trained coach who is handicapped as a result of a road accident (Spain RACE)
- Two trainers working together (France ECF)

[8] Based on the following sequences:
- Basic research into young drivers problems
- Definition of goals of training
- Development of training programme and training-the-trainer requirements
- Training the trainer
- Implementation of trials and evaluation of training
- Optimization
- Implementation of actual training
- Ongoing quality control (inspections, evaluations)
- Ongoing training of trainers

- The selection of simple 'track' areas for the track modules (Spain RACC and Spain RACE) [9]

7.8.3 Content level

Feedback drive:

- The G-CAM in-built camera and data monitoring system from the Belgian project which allows specific driving situations to be recorded and replayed (with analysis) after the session
- Practising situations already identified as a weakness by individual participants (Germany)
- The self-evaluation part of the driving assessment form used in the Netherlands

Group discussion:

- The video of typical situations for young drivers (Netherlands)
- Development of individual strategies for safe driving (Germany)
- Role plays (Germany)

Track module:

- The ' mickey mouse' exercise in the RACC training which focused on level 3 driver behaviour (effect of peer pressure, distractions, multi-tasking)
- The vehicle inspection in ECF France: pairs of participants examine each other's cars and draw conclusions about the state of the vehicle (maintenance and safety features) in relation to the accessories added (i.e. on what aspect of the vehicle is the money being spent- safety or aesthetics?).

[9] Large and hi-tech track training facilities may give the wrong impression of the training to the young drivers. They may increase expectations of a manoeuvring skills-based training. Such an impression may be strengthened by the presence of advertising or any other features related to racing, for example. The areas used in Spain included car parks which were adapted for safety reasons but which lead to no false expectations on the part of the participants.

8. ANALYSIS OF EVALUATION DESIGNS

This section looks at how the NovEV training programmes were evaluated, and how reliable and valid the results are. Different types of evaluation designs, and ways to implement them, were presented in the EU Advanced project report ('How to make a 5 star evaluation of your training'). Question scales were used by many of the participating countries from Hatakka M. (1998) Novice drivers' risk- and self-evaluations. Use of Questionnaires in Traffic Psychological Research[10].

8.1 Research designs

4 of the 6 evaluation designs (France, Netherlands and the two Spanish projects) were before-and-after measurements with control groups. The effects of the training were not measured immediately after the course; in fact they measured the effects up to 11 months after the first measurement.

In Germany, due to time constraints, only a process evaluation was carried out (single measurement with no control group). In Austria, a process evaluation was also carried out, in addition to a survey using before-and-after evaluation design (although the participants were not the same in each case: between subjects design) but without control group.

8.2 Objectives of the evaluations

The objective of 4 of the 6 evaluation designs (France, Netherlands and the two Spanish projects) was to measure changes in the knowledge, skills, attitudes and behaviour of the participants in the programmes. A full-scale evaluation of accident rates was not possible due to the short timeframe and small samples of novice drivers participating in the project. In Germany, the objective was to check the correct implementation of the programme which is being unveiled on a long-term nationwide basis. This was also Austria's objective. Another aim in Austria was to see how multiphase participants differed, if at all, from traditionally educated drivers 4 years previously.

8.3 Subjects

Aside from Austria, which has an obligatory multiphase system, participants in all other NovEV programmes enrolled on a voluntary basis. Subjects were selected on the basis of their age, sex and driving experience (or length of licence). Across all the participating countries, ages ranged from 18-24 and driving experience varied from 4 months to 3 years; in the case of one programme, minimum mileage was also required.

In Netherlands and France, participants were also chosen on the basis of their pre-licence education type. These countries wished to measure the effects of the 2nd phase training compared to the pre-licence education (RIS in the Netherlands; AAC in France).

The experimental and control groups were both chosen, using a random sampling technique, from the list of persons interested in participating in the training.

In Germany and the Netherlands, the views of the trainers (and trainers-of trainers in the case of Germany) were also gathered.

[10] Method Development, General Trends in Four Sample Materials, and Connections with Behaviour. 219p. Annales Universitatis Turkuensis, ser.B, Humaniora. Turku: Painosalama.

8.4 Data collection methods

The principal data collection methods were questionnaires and on-road driving audits.

Measurement instruments behaved partly in the predicted way, but not always.

Reliability measures showed that measurements were reliable, according to findings in this study or earlier in another context.

8.5 Methods used in analyses

The results and conclusions in the studies were based on statistical analysis and also partly on qualitative analysis.

8.6 Problems in reliability and validity

The drop-out rates were significant across the board, despite considerable potential rewards for those who participated in the whole intervention and in all the measurements. As a result, the statistical power in the analyses decreased. However, wherever possible, a repeated measures design was used in the analyses.

Except in Austria, the participants were volunteers. According to the programme, there were different motives for participating: road safety, reduction of the probationary period, winning a prize (e.g. a new car, free insurance for one year, a foreign holiday, etc).

Ultimately, the small group sizes and short follow-up period meant that there were no real possibilities to obtain results concerning actual safety effects in traffic (reduction in accidents).

On a detailed level, the evaluators of the feedback drives / driving audits often knew if the participant was in the experimental or control group.

Unfortunately, the difference in results and environments, and also evaluation designs, in terms of measurement methods as well as programme implementation, did not allow the results of each country to be combined. This was not an objective of the NovEV project, however.

Interestingly, the project showed that a difference between the original design and the training in practice, as well as differences in evaluations, seemed to produce differences in results. For example, small differences in the content and methods of track training may lead to significantly different effects on participants.

8.7 Conclusions

Despite the above comments concerning problems in the evaluations, the results can be considered reliable, mainly because of the before - after design with randomised experimental and control group.

9. OVERVIEW OF EVALUATION RESULTS

	Results	Evaluation design	Data source	Time of post-training measurement
Austria	Participants generally satisfied with obligatory modules Multiphase females reported safer driving and less speeding offences than traditionally educated females (4 years in between) Possible counterproductive message regarding track module	Before-and-after (no control group) Process evaluation	Questionnaires	na
Belgium	DROPPED OUT			
France	Significant positive change in awareness of risks linked to driving habits (MALES) Significant positive change in driving skills for defensive driving (MALES) (Slight) trend towards less frequent risky driving situations (MALES)	Before-and-after with control group	Questionnaire Questionnaire Questionnaire	7 months after 2nd training day
Germany	Programme mostly implemented as intended Training rated positively by participants Participants claim to use practical driving strategies developed in training Possible counterproductive understanding of the goals of track module	Process evaluation (single measurement)	Questionnaires	na
Netherlands	Significant positive change in calibration in 1 of 2 test groups Significant positive change in driving skills* in 1 of 2 test groups Negative trend in driving skills* and calibration in other test group *Driving skills = GDE levels 1 and 2	Before-and-after with control group	On-road audit On-road audit On-road audit	1 month after training
Spain RACC	Significant positive change in social driving behaviour	Before-and-after with control group	Questionnaire	6 months after training
Spain RACE	Significant positive change in knowledge Significant positive change in driving skills (GDE levels 1 and 2)	Before-and-after with control group	Questionnaire On-road audit	6 months after training

10. CONCLUSIONS

The following chapter focuses on some general conclusions, followed by conclusions on specific levels of the programme: the design level, organisational level and content level.

10.1 General conclusions

Firstly, it should be remembered that the sole focus of the NovEV project was one or more days of road safety training after the licence. This training was simply added to whatever basic training the participants received. It is vital, however, to stress the importance of a well-developed basic training too (see EU BASIC project report, 2003). Furthermore, the Finnish experience suggests that the pre- and post-licence training should be linked in some way (common messages, etc).

The results of the 2nd phase pilot programmes in the NovEV project (see previous page) show that such programmes can have a positive influence on the –mostly self-reported - driving behaviour of novice drivers, as well as, in one case, trainer-audited driving behaviour. This, at least to some extent, confirms the validity of the guidelines laid down in the Advanced project on 2nd phase training. Importantly, however, the results also show that it is quite possible for 2nd phase programmes to have a negative impact on the driving behaviour of such drivers. They also show that, despite the best efforts of the designers of the programme, novice drivers can receive unintended signals about what the course is actually supposed to achieve. These points, again, confirm the concerns expressed in the Advanced project.

All programmes with a comprehensive before-and-after evaluation design with control group succeeded in achieving positive results in the NovEV project. Although the results were perhaps not as positive as hoped for –a number of other factors were measured and no significant results were achieved -, the NovEV project should nevertheless be considered a success. The participating countries succeeded, at least on paper, in creating 2nd phase training programmes based on the guidelines established in the Advanced project. These guidelines stressed the importance of focusing on the higher levels of driver behaviour, and using participant-centred methods designed to generate discussion and self-reflection. However, the results were by no means an overwhelming success, indicating that further work needs to be undertaken to verify the assumptions of the Advanced guidelines. It should be added, moreover, that there is no clear evidence at this stage proving the effectiveness of existing obligatory 2-phase systems, such as in Finland, Luxembourg, and more recently, Austria (see annex 5 on the Finnish system).

Translating the Advanced guidelines from paper into practice poses a number of potential problems. Firstly, the managers of the training organisations must agree on the philosophy put forward in the guidelines. This project has highlighted the fact that organisations may still be reluctant to do so[11]. Clearly, more effort needs to be spent communicating the philosophy of Advanced to trainers and training organisations who traditionally have had a different approach. Secondly, the trainers who are responsible for implementing the course must be properly trained. Training-of-trainers needs not only to focus on the goals and implementation of the training, but also on how to deliver the course in the right way. The trainers need coaching skills, knowledge of young driver psychology and experience with group dynamics. These skills

[11] In particular, track trainers with experience in voluntary post-licence training may have difficulty accepting and implementing 2nd phase guidelines (as stated in the Advanced report). This difficulty may relate to their acceptance of the rationale of the 2nd phase guidelines as much as to a tendency to fall back on their previous working methods. It also depends on the quality of their training.

do not come overnight and need to be developed and honed over time. Thirdly, despite the best efforts of designers, training organisations and trainers, it is still possible for the novice driver participants to draw the wrong conclusions about the training. This phenomenon is particularly relevant to the track modules where participants may be left with a feeling that they have improved their mastery of emergency traffic situations, even though such mastery is not an objective of the course. As we know, such feelings can easily generate over-confidence amongst some young drivers, with potentially disastrous results when driving independently. The above points all lead to the same conclusion – a 2nd phase programme must be scientifically evaluated at all these levels to ensure that it is being implemented in the way it was intended. As seen in the Dutch NovEV experience, the same training on paper had completely different results in the two training locations.

The difficulty of translating the guidelines from paper into practice may, to some extent, explain why the overall project results were less comprehensive than originally hoped for. Other more structural factors may also explain this. It is commonly agreed that a 2nd phase programme should be spread out over time. This lengthens the support period for novice drivers and allows them to acquire more experiences and to implement what has been learned in practice. In the case of the NovEV projects, however, 3 of the 4 programmes (where changes were measured scientifically) took place over only 1 day. A single day's training is unlikely to lead to significant changes in the attitudes, skills, knowledge or driving behaviour of the participants. In addition, the post-training measurement phase in 3 of the 4 programmes took place 6-7 months after the training. Therefore, it is possible that the impact of the training had already begun to fade by that stage. That said, one of the objectives of this type of training is to encourage the development of sufficient self-evaluation skills for the effects to be longer-lasting. Another possibly explanatory factor is that the novice drivers participated on a voluntary basis. It is likely that such participants were already more safety-aware than the average novice driver before the training began. Logically, therefore, it would be more difficult to raise their (already high) level of safety awareness in such a short period of time.

Another important conclusion of the NovEV project is that the results – in terms of training effects on participants - can only really apply to the group-types represented in the various training programmes. Despite material incentives designed to attract a representative spectrum of the young and novice driver population, it is likely that the final sample groups were, in general, more safety-oriented than in the overall young driver population.

What is also clear from the experiences of the pilot programmes within NovEV is that novice drivers are not interested in participating in 2nd phase programmes on a voluntary basis. Despite a wide range of incentives to take part, all pilot countries had 1) difficulty in convincing novice drivers to participate, and 2) a major drop-out rate once the training had begun. Positively, however, the NovEV programmes were all - with the exception of the one training organisation where the negative effects were recorded - highly rated by the final participants. Moreover, the Austrian findings support the data collected over the last few years in Finland: namely that, although novice drivers may not be that keen on the idea itself, they are highly satisfied with the obligatory 2nd phase training once they are there.

10.2 Conclusions at different process levels

10.2.1 Conclusions: design level

- Trainers can vary, in terms of their background and profiles, from country to country. In Finland, for example, the driving instructor is responsible for all 2nd phase modules. In contrast, a different trainer is present for each training module in Austria (track trainer, instructor for the feedback drive and a psychologist for the group discussion). It should be noted that trainers with only a short period of contact time with participants have a tendency to try to transfer their knowledge and expertise to the young drivers. This should be avoided, because of the role of the trainer in second phase as a coach, not an instructor. Trainers are responsible for raising the right questions, not the right answers. On the other hand, should driving instructors, for instance, be given the task of ensuring the implementation of the whole 2nd phase training? Coaching skills, and to some extent experience with groups, are not skills typically associated with driving instructors. In summary, this is an ongoing discussion point, but ultimately, whatever the choice is made, the trainer should be able to deliver the course properly.
- The vocabulary used in training is very important, because the words themselves send messages to the participants. Word such as 'instructors', 'track training' and 'trainers' can all reinforce the impression that the objective of the 2nd phase is to improve manoeuvring skills, through a process of repetition and measurable 'improvement', until a fixed objective is reached (and that the programme is based on following instructions rather than thinking for oneself and reaching individual conclusions). Alternative, more neutral (and more accurate) wording could be sought after. For instance, track training might become 'driving demonstrations', and trainers and instructors could become coaches.

10.2.2 Conclusions: organisational level

- Trainers require training over a sustained period of time, rehearsals, feedback and ongoing training. Accreditation of trainers should be seriously considered when implementing 2nd phase training on a national level. Apart from the obvious need for trainers to understand and deliver the intended content of the training, trainers require coaching skills, an understanding of young driver psychology and the ability to deal with - and generate discussion in - groups.
- Training should, where possible, allow the participants and trainers to relax in each other's presence before the group discussion module takes place. (Youngsters may be less inclined to talk openly at the beginning of a training day). In Finland, for instance, the group discussion now takes place after the track training. This provides for the above conditions, at the same time as allowing for the experiences from the track training to be combined with their independent driving experience in the discussion.
- Participants should be monitored, perhaps through questionnaires, to see what conclusions they are drawing from the training. This is especially relevant to track modules where participants may draw the wrong conclusions, thereby signalling to the training management that the content or delivery of the training should be changed.
- Some form of shelter should be available to groups during track training sessions (in the event of extreme weather conditions). As stressed in the Advanced report, the discussion sessions following track exercises are extremely important, and the effectiveness of such discussions can be impaired if the participants are unable to concentrate properly.

10.2.3 Conclusions: content level

- A feedback drive should be a feedback drive, not a driving lesson. Furthermore, the feedback should be mostly coming from the participant, not the trainer. The trainer should evoke feedback from them by asking targeted questions. It is important to emphasise and monitor this in the training-of-trainers and the rehearsal. It is very easy for trainers to tell participants what the conclusions are of the exercise, rather than to ask about the participants' experiences and to get participants to conclude for themselves what they will take from the exercise and the course. The presence of other participants in the car (taking it in turns to drive and commenting on each other's driving styles) can be very beneficial. This is not just from the perspective of gaining peer feedback but also because it allows for discussion on how the presence of passengers can influence one's driving style (e.g. peer pressure). Ample time should be allowed for each participant to relax and to drive 'normally'. Enough time should also be allocated for a discussion at the end of the session.
- Track modules should focus primarily on risk awareness, not manoeuvring skills training[12]. Unnecessary repetition should be avoided as this reinforces the impression that skills are being trained. Discussion should take place following each exercise. Careful thought should be given to the location of the participants during the exercises – to ensure a full learning experience (should they drive themselves, be a passenger, be standing outside the car, have a demonstration from the trainer?). Risk awareness exercises training the higher levels of driver behaviour are possible in track modules and are to be encouraged. The amount of time spent in the track session(s) should not be disproportionate to the time spent in the feedback drive(s) and group discussion(s). The results of the subjects' satisfaction questionnaires in Austria and Germany, and the results of the Netherlands' track training support these findings.
- Group discussion should be primarily a discussion, not a lecture. The trainer is required to pose questions rather than inform, to guide the discussion rather than lead it. Participants should be analysing experiences and engaging their brains. Participants should be encouraged to identify areas of risk and to relate their own driving to the situations evoked. Feedback from the participants should be written on a flipchart. This is a neutral form of registering comments and is less confronting than direct conversations between individuals. Discussions amongst the group should remain low-key and relaxed. Again, the main focus should be on the higher levels of driving behaviour. Videos, case studies and role plays can provide considerable structure to these discussions. Such structure also helps trainers who are not that confident or experienced. Videos or screen presentations should not be overly relied upon, however, as they can easily become another form of presentation / lecturing. The starting point, where possible, should be the experiences of the participants.
- The period between training days can also be structured to good effect, in order to encourage young drivers to be aware of and to analyse their experiences. Self-evaluation forms and driver profiling can aid this process and can mentally prepare the drivers for a forthcoming training module. (This is already done in practice in Finland).

[12] Emergency braking practice is an exception to this rule due to the importance of the skill and the relative simple manoeuvre itself, compared to braking and avoidance for itself. Emergency braking practice should either be designed to improve emergency braking skills OR to encourage risk awareness (stopping distances in relation to speed and surface, reaction times, etc). If the objectives of the exercise are mixed, i.e. to improve both the braking manoeuvre itself (=skills training) and to improve risk awareness, the young drivers tend to remember the skills element and the risk awareness message is lost.

11. RECOMMENDATIONS FOR 2ND PHASE TRAINING

Based on the conclusions in the previous chapter, and on prior experience in the field of 2nd phase and 2-phase driver training systems, the following recommendations apply. These recommendations should also be considered in conjunction with those already stated in the EU Advanced project. This chapter is written in the same manner as the conclusions, with recommendations categorised under 'design', 'management' and 'content'.

11.1 Design of 2nd phase

- ✓ The content of the 2nd phase should focus primarily on the higher levels of driver behaviour and should be delivered using participant-centred methods designed to generate discussion, self-evaluation and the drawing of individual conclusions and strategies for safe driving.
- ✓ The programme should be spread out over time, in an effort to support the novice driver in a structured manner through his/her early independent driving experiences, and to maximise the potential for behavioural change.
- ✓ NovEV recommends the implementation of 2nd phase training during the first year of independent driving following the licence. This timing takes into account both the very high risk levels of novice drivers immediately after the driving test AND the need for these drivers to have some sort of practical independent driving experience before attending the 2nd phase. The modules of the 2nd phase should be spread out during this period (as in Austria), in order to offer an ongoing support mechanism for the novice driver.
- ✓ The content / messages of the 2nd phase training should be linked where possible to the pre-licence training (in order to ensure coherence in the training and to reinforce the training objectives).
- ✓ The training modules (class, track and road sessions) should be balanced in terms of length and focus. A disproportionate emphasis of one training module, particularly track training, risks sending the wrong message to the novice drivers.
- ✓ Track modules should focus primarily – if not exclusively - on risk awareness and should strive to avoid unnecessary and counterproductive emphasis on vehicle control skills. Track exercises designed to simulate situations involving the higher levels of driver behaviour are to be encouraged.
- ✓ For political, scientific and logistical reasons, countries may like to consider the possibility of phasing-in the different modules of an obligatory 2nd phase programme over a period of time. The rationale of this procedure is to start initially with a feedback drive (for which the driving instructors would need to be trained). Novice drivers during this period would only have the feedback drive as their 2nd phase programme. At some stage later in the future, once enough training has been given to the trainers, a group discussion module could be implemented too. Then, finally, a track module could be introduced at a later date. This phasing-in process would achieve several goals. Scientifically, it would be possible to measure and isolate the influence of one or a combination of different modules from each other. Politically, it would be less drastic than introducing a 3-module programme at the same time. Logistically, it would also provide time for the proper training-of-trainers, rehearsals and controls before the (most complex) individual modules (group discussion, track experiences) are introduced.

11.2 Management of 2nd phase

- ✓ Detailed guidelines for managers and trainers should be made available in the event of 2nd phase programmes being implemented. Any law allowing for the implementation of the 2nd phase will be general and will not provide the level of detail necessary to ensure a coherent and uniform training across the country (and via different training organisations and trainers). A detailed 2nd phase training manual should be written and distributed thereafter, outlining the objectives, content, methods and process of the programme. Individual trainers' manuals should also be developed for each specific training modules.
- ✓ The implementation of the 2nd phase programme should be quality-monitored and managed by an independent steering committee. Whereas organisations and individuals involved in the 2nd phase training may have a consultative role, decision-making should clearly be in the hands of independent persons. This steering committee should be responsible for ensuring adequate training of trainers, accreditation of individual training bodies and trainers, and for ongoing monitoring of training over time. Whilst the exact content of the specific training modules may vary from one place to another, the content must be designed to reach the objectives of the 2nd phase programme, and any exercises deviating from norms laid down in the official training manuals must be approved by the independent body. In the knowledge that there can easily be a difference between the design on paper and implementation in practice, ongoing, independent quality control, conducted by trained auditors, is vital.
- ✓ Trainers require training and testing on coaching and moderating groups of novice drivers. Despite the existence of alternative options (psychologists, sociologists, social workers…), the obvious choice of 2nd phase trainer (particularly for the class and feedback drive modules) is the normal pre-licence driving instructor. Whereas in some countries, for example Germany, driving instructors are trained and experienced in moderating young groups of drivers, instructors in many other countries receive neither training nor do they have the opportunity to practise this skill. As coaching and group dynamics are so important for 2nd phase training, countries where the trainers have little or no prior experience in these areas should think twice before implementing obligatory post-licence training. NovEV recommends that the European Commission should consider the benefits of a new EU project to design and test coaching and moderation training seminars for driving instructors.

11.3 Content of Training Programme / Trainers

- ✓ More examples of specific training exercises should be made available to countries and organisations who wish to implement 2nd phase training. Current 2nd phase guidelines remain largely theoretical at this stage, so more practical examples would be beneficial, and would go further to ensure that the training is carried out effectively and coherently. NovEV recommends a follow-up European project to collect and create effective and innovative exercises for 2nd phase training (track, class and on-road), building on the examples already provided in the Advanced project risk awareness database. These examples should focus above all on levels 3 and 4 of the GDE matrix.
- ✓ Monitoring is required to check the perceptions of both the track trainers and the novice drivers with regard to the messages/goals of the track training. At least two NovEV countries reported participants feeling more skilled (in terms of vehicle control) as a result of the training, despite this not being an objective of the track training. (This observation is linked to the potentially counter-productive phenomenon of overconfidence amongst novice drivers).