

Intelligent Energy  Europe



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TRAINER Final Conference
Tours

Friday 25 September 2009

TRAIning programs to
Increase Energy efficiency
in Railways



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Training at Railways





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Didactic skills

Didactics

=

“education science”

or

“the art of teaching”

Paul Offerman



Didactic skills

Learning is a process during which more or less permanent behavioural changes or potential behavioural changes occur under the influence of experiences.

Teaching-learning situation = the situation in which the educational/mentoring activities take place.

For example: do we use a train, a simulator, a classroom, e-learning or combinations thereof during training.

Components are:

- learning content
- learning activity
- didactic working methods



Didactic skills

Seven didactic key questions

1. What do I want to achieve in this part (at this stage) of the learning process of this/these student(s)?
 - did I set proper goals and have they been verified by management?
2. At what point should I commence the learning process?
 - is the train driver experienced or inexperienced?
3. Which learning content or subject should I offer to close the gap between the objectives and the initial situation?
 - have the train drivers been prepared on the subject of eco-driving?
 - how much resistance should I expect?



Didactic skills

Seven didactic key questions

4. Which learning activities do(es) the student(s) have to complete to process the learning content and therefore realise the objective(s)?
 - do we need a demo drive with the train?
 - can I give them material for self-study?

5. As an instructor/mentor, what can I do to influence the learning process of students, or in other words: which didactic working method should I use?
 - which position should I take?
 - am I the instructor, sounding board, inspector, or all of those?



Didactic skills

Seven didactic key questions

6. Teaching/learning tools

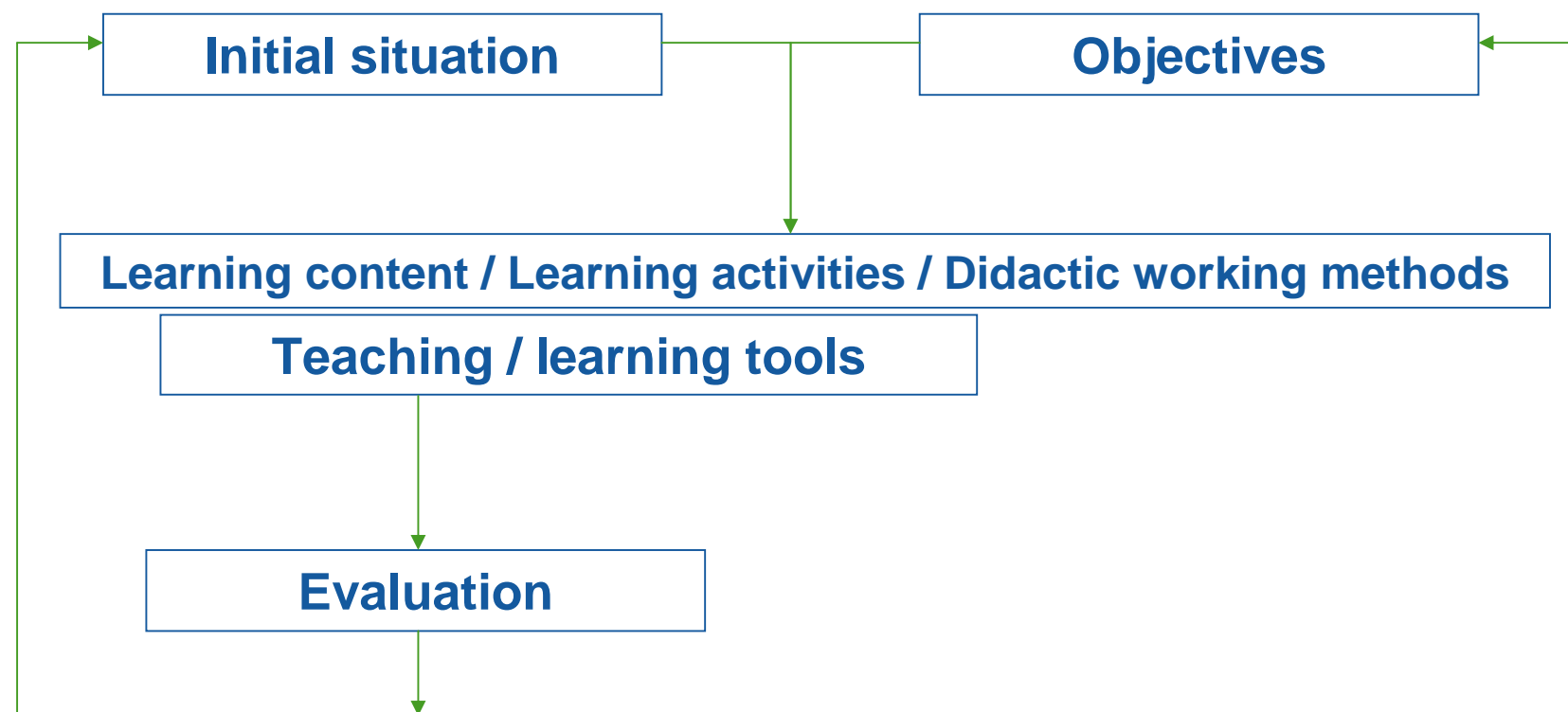
- do I develop teaching/learning tools myself?
- can I use existing tools?
- which trains are suited for training purposes?

7. How do we verify that we have achieved what we wanted and whether we achieved this in the best possible way?

- is there any equipment available to measure energy use?
- am I able to measure the actual use of fuel and power?
- if not, which data can I use to demonstrate the effect of eco-driving?

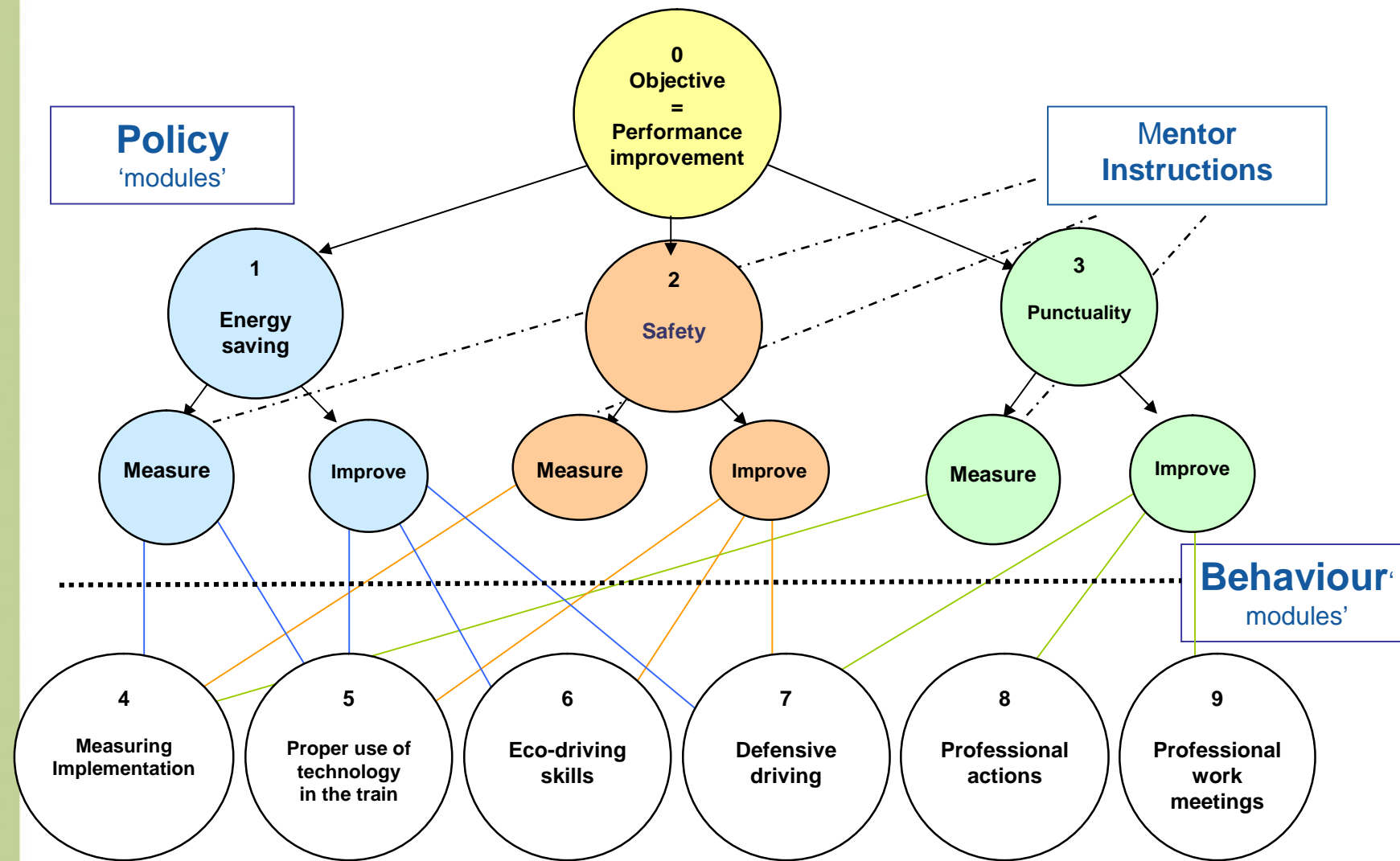


Didactic analysis model





Training model





Didactic skills

Establish training objectives first

1. This allows for proper preparations.
2. It creates clarity for all participants.
3. Evaluation and assessment can be thoroughly preplanned and prepared and will be less random.
4. Training can take place in an efficient manner.



Didactic skills

Clear training objectives

5. Stimulates proper build-up of the entire training course.
6. Defining objectives increases awareness.
7. Defining objectives can boost motivation.
8. The objectives' feasibility becomes more apparent.
9. Clearly defined objectives provide material for final testing.



Didactic skills

Types of objectives

Training objectives:

- Open objectives
- Closed objectives

Order of learning objectives:

- Cognitive area
- Skills area - affective area



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Didactic working methods / learning activity

- Lecture format
- Discussion format
- Assignment format



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Lesson implementation

- Learning plan
- Teacher manual or Training scenario
- Subject matter



Didactic skills

Stages in the role as mentor/trainer

Motivator	Demonstrator	Mentor	Corrector
Motivation stage	Demo stage	Mentor stage	Correction stage
Student is listening	Student is watching	Autonomous work	
Mentor explains "what", "why", "how"	Mentor demonstrates	Mentor coaches student while student is working autonomously	Mentor corrects students while student is working autonomously
Auditory	Visual	Motor	Ratio/emotion



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Teaching / learning tools

Tool selection based on:

Suitability

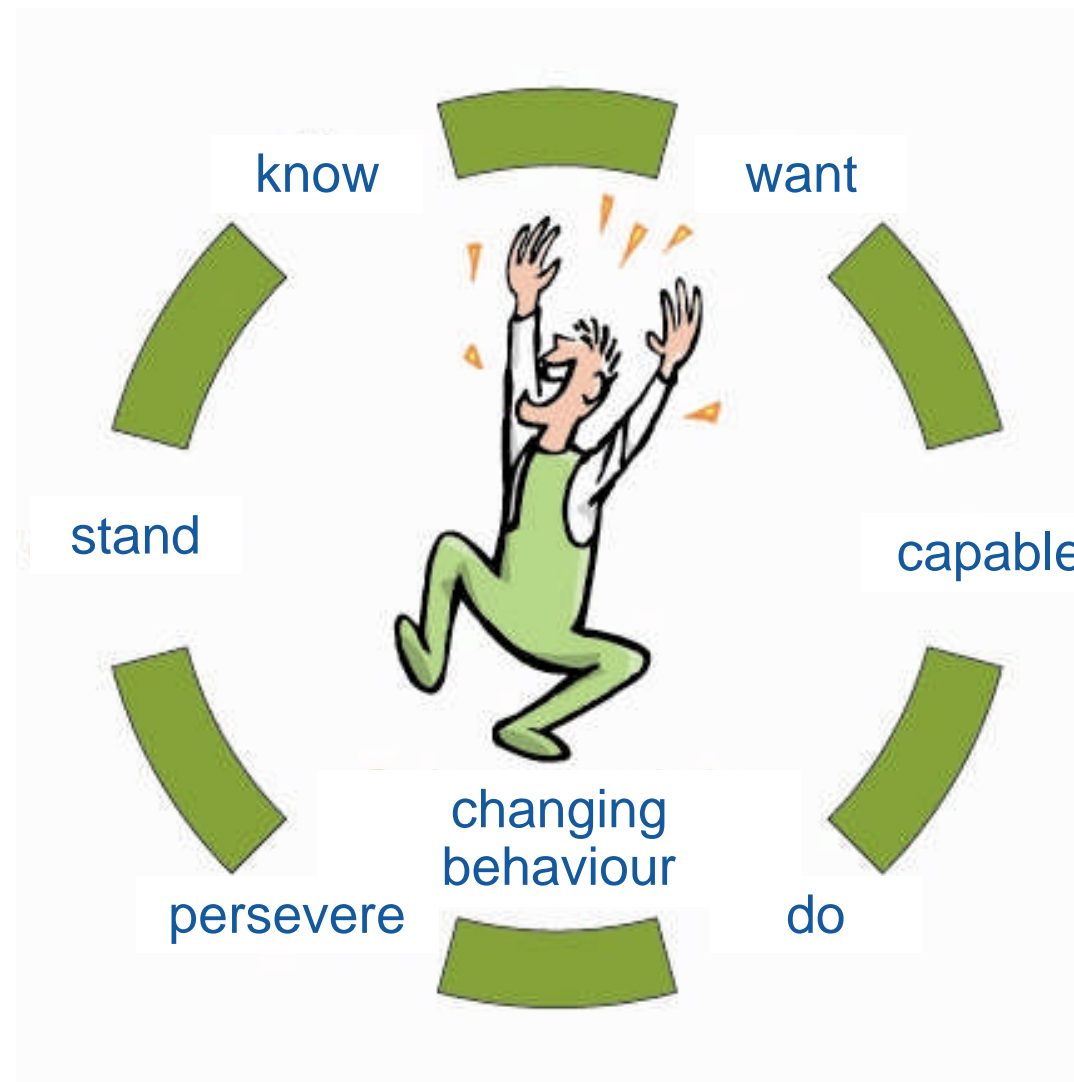
Level of difficulty

Cost/Budget

Availability



Behaviour

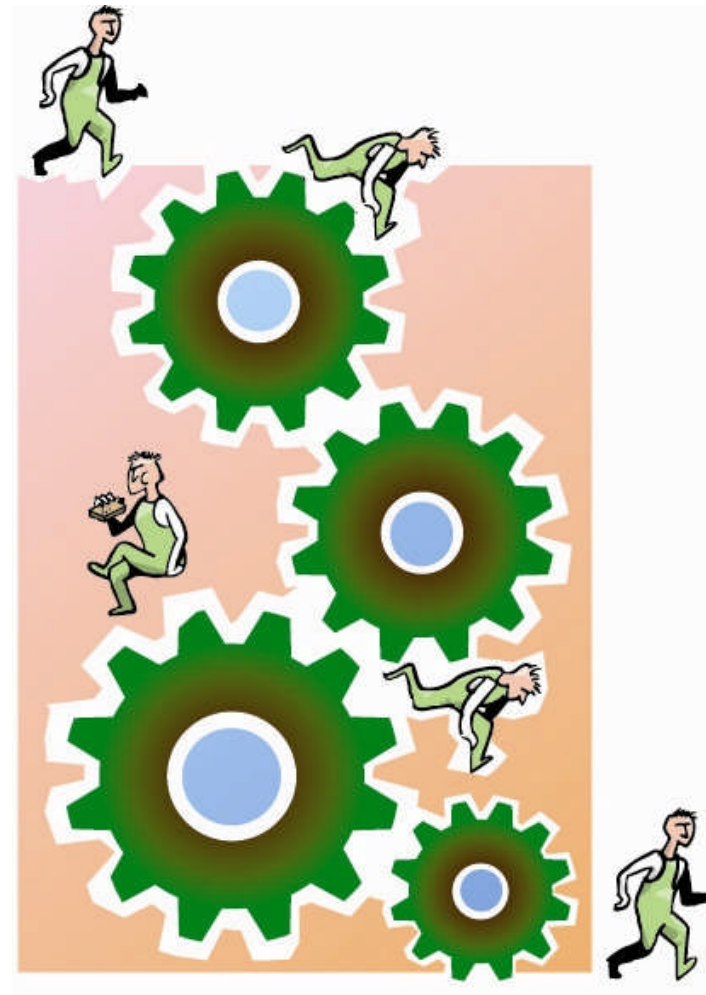




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Changing Behaviour





Changing Behaviour

Pre-Contemplation	Contemplation	Determination/Preparation	Action	Maintenance	Relapse/Recycle
	 Fence				
No; Denial	Maybe; Ambivalence	0-3 Months Yes, Let's Go; Motivated	3-6 Months Doing It; Go	Over 6 months Living It	Ugh!!

Desired behaviour takes time and sustained attention



Investment versus results

Main rule

- Minor investment = Poor results
- Major investment = Great results

But: A smart approach will help you achieve success.



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Investment versus results

Provide support to all actions

- Involve the supervisor prior to action.
- Involve the target group from the beginning (e.g. train drivers).



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Investment versus results

Provide support to all actions

- Always develop a realistic plan first, including time and cost planning.
- Involve the target group from the beginning (e.g. train drivers).