



Towards Evidence-based Road Safety Education for All Age Groups

Niki Hukker & Jan Vissers

OVERVIEW

1. Lifelong Road Safety Education
2. Educational Checklist
3. Results so far
4. Recent developments





1. Background and Development Lifelong Road Safety Education



LIFELONG LEARNING CONCEPT

56TH CIECA
CONGRESS
DUBAI 2024



- Road Safety Education (RSE) at important shifts in modes of traffic participation
- Know-how, skills and attitudes for safe participation in traffic
- For all age groups: “from the cradle to the grave”





SIX TARGET GROUPS

- Preschool education (0 – 4 years)
- Primary school education (4 – 12 years)
- Secondary school education (12 – 16 years)
- Novice drivers (16 – 25 years)
- License holders (25 – 60 years)
- Elderly traffic participants (60 years and older)



TOOLKIT RSE INTERVENTIONS

- First step in quality assurance
- Database with interventions classified by target group
- Used by professionals to give a recommendation about the 'best matched' intervention
- Web-based: <https://www.crow.nl/kennis/tools-mobiliteit-en-gedrag/toolkit-verkeerseducatie>
- More than 170 interventions



2. Development and Implementation of Educational Checklist

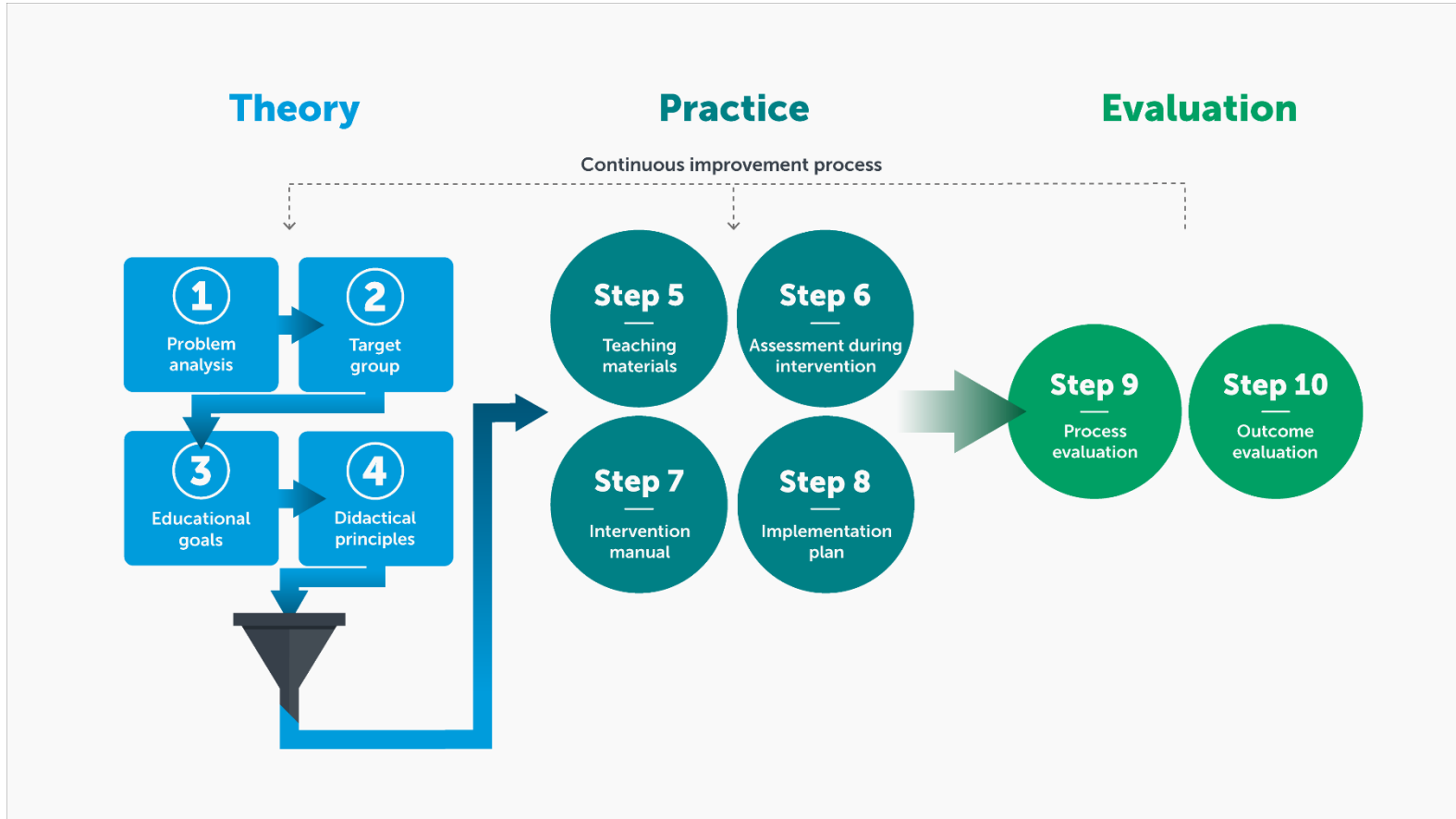




EDUCATIONAL CHECKLIST

- Which steps are essential for the development of an effective intervention?
- Have all these steps been considered and have decisions been substantiated?
- Inspired by ‘Intervention Mapping’ methodology: tool for the planning and development of health promotion interventions
- Evidence and theory-based approach

10 STEPS





CHECKLIST: 3-FOLD PURPOSE

- **Development tool**

Give support to intervention designers to develop their programs

- **Assessment tool**

Give funding organizations insight into the quality of RSE interventions

- **Stimulate the evaluation of interventions**

See steps 9 and 10



ASSESSMENT PROCEDURE

- Review of documentation
- Assessment interview
- Possibility for producer to improve on weak points
- Final assessment
- Assessment published on RSE Toolkit website

1. Problem analysis	★★★★
2. Target group	★★★★★
3. Educational goals	★★★★★
4. Didactical principles	★★★★
5. Teaching materials	★★★★
6. Assessment during intervention	★★★★★
7. Intervention manual	★★★★
8. Implementation plan	★★★
9. Process evaluation	★★★
10. Outcome evaluation	★★★★★



3. Results of 10 Years Experience with the Educational Checklist

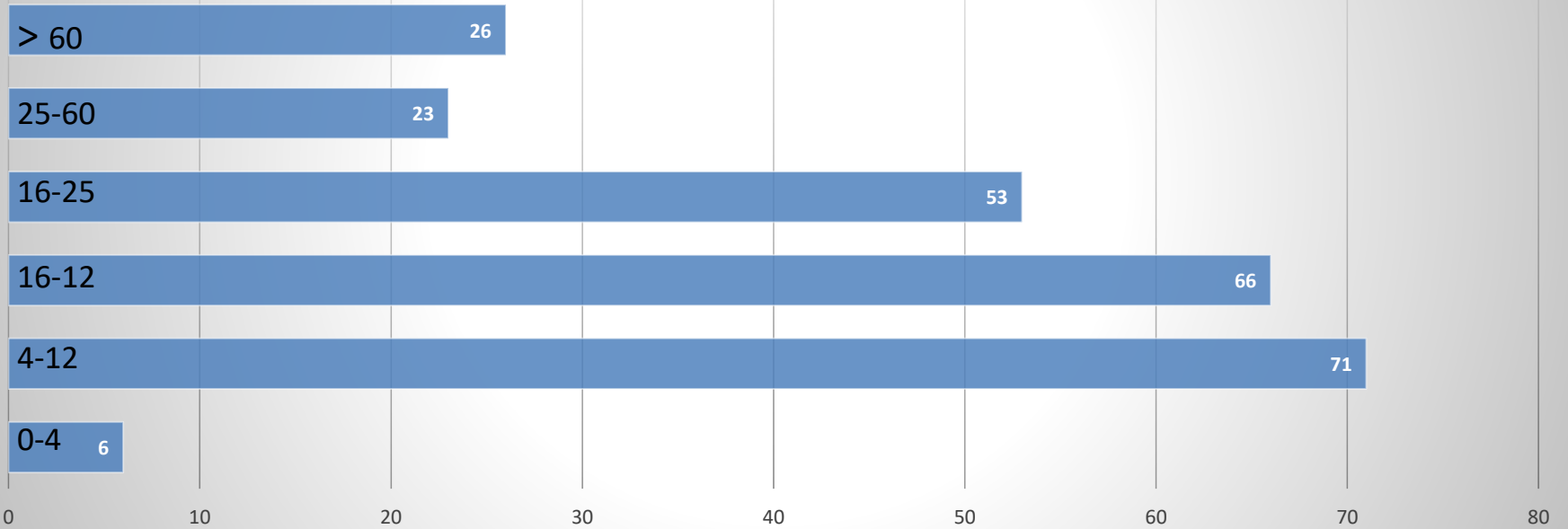
RESULTS SO FAR ...



- More than 170 interventions described in RSE Toolkit
- More than 130 interventions assessed with educational checklist
- About 15 new assessments each year

INTERVENTIONS BY TARGET GROUP

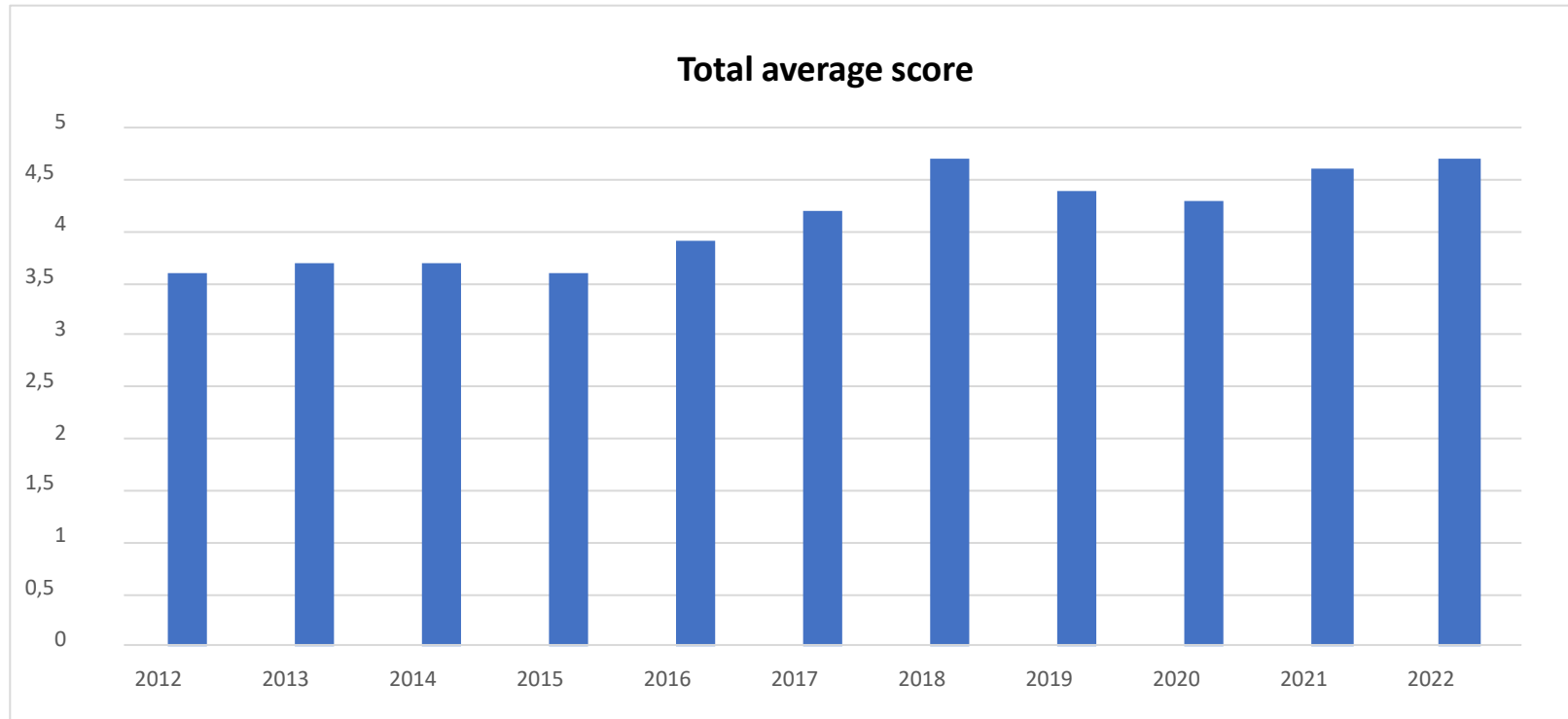
Number of interventions by target group





DEVELOPMENT OF SCORES

- Total average score from 3.6 in 2012 to 4.7 in 2022





EVALUATION STUDIES

- 34% of interventions has been evaluated
- quasi-experimental design with experimental and control group: increase from 12% of all interventions in 2017 to 21% in 2021
- still in 4 out of 5 cases no proper evaluation study has been carried out
- for these interventions there is no evidence they have a positive (or negative) effect on road safety



4. Recent Developments

GOALS



LEARNING GOALS

- First learning goals document developed in 2004
- Specific goals for each target group
- GDE-matrix used as a development structure
- Adaptation of GDE-matrix: more attention for higher order skills:
 - **Cognitive higher-order skills:** hazard perception, situation awareness
 - **Calibration skills:** realistic self-image of own skills
 - **Social-affective skills:** showing empathy, impulse control, dealing with peer pressure

GDE 'new style'

	Basic Skills		Higher Order Skills		
	Know and understand (necessary underlying knowledge)	Decide and act (properly execute task processes)	Higher-order cognitive skills (situation awareness, hazard perception)	Calibration (realistic self-image of own skills)	Social-affective skills (showing empathy, impulse control, dealing with peer pressure)
Combine life-tasks and drive with a goal	Influence of personal characteristics, factors and circumstances on basic skills		Influence of personal characteristics, factors and circumstances on recognizing and dealing with risky situations	Influence of personal characteristics, factors and circumstances on the choice of situations to suit your own safety	Influence of personal characteristics, factors and circumstances on the perception of situations, feelings and interests of other road users
Prepare, plan and navigate	Consequences for the execution of basic skills of choices you make before entering traffic		Consequences for recognizing and dealing with risky situations of choices you make before entering traffic	Consequences for entering situations that may or may not suit your own ability of choices you make before entering traffic	Consequences for other road users of choices you make before entering traffic
Resolve situations-participate in traffic	Knowledge, insight and skills to safely resolve traffic situations: what are the rules and agreements and how do I apply them safely?		Knowledge, insight and skills to recognize traffic risks in time and then avoid them or prevent unsafe situations from arising	Know which traffic situations you can and cannot handle and choose your behavior in such a way that situations are manageable for you and can be solved safely	Know what the consequences can be for other road users if you do not resolve traffic situations according to agreements and make unsafe choices
Vehicle control and manoeuvres	Technical control of the vehicle		Knowing the risks you run if technical control is insufficient and knowing what to do to prevent these risks	Know how well you control the vehicle technically and choose situations in such a way that you can technically handle them	Knowing what the consequences can be for other road users if technical control is insufficient

CURRENT STATUS

- New learning goals developed for two target groups:
 - Primary school education
 - Novice drivers: basis for new driver training curriculum
- Learning goals for secondary school education to be developed this year

ALIGNMENT TESTING - TRAINING



	Basic Skills		Higher Order Skills		
	Know and understand (necessary underlying knowledge)	Decide and act (properly execute task processes)	Higher-order cognitive skills (situation awareness, hazard perception)	Calibration (realistic self-image of own skills)	Social-affective skills (showing empathy, impulse control, dealing with peer pressure)
Combine life-tasks and drive with a goal	Influence of personal characteristics, factors and circumstances on basic skills		Influence of personal characteristics, factors and circumstances on recognizing and dealing with risky situations	Influence of personal characteristics, factors and circumstances on the choice of situations	Influence of personal characteristics, factors and circumstances on the perception of situations
Prepare, plan and navigate	Consequences for the execution of basic skills of choices you make before entering traffic		Consequences for recognizing and dealing with risky situations of choices you make before entering traffic	Consequences for recognizing and dealing with risky situations of choices you make before entering traffic	Consequences for recognizing and dealing with risky situations of choices you make before entering traffic
Resolve situations-participate in traffic	Knowledge of traffic situations		Knowledge of traffic situations and skills to deal with them in time and prevent unsafe choices	Know which traffic situations you can and cannot handle and choose your behavior in such a way that situations are manageable for you and can be solved safely	Know what the consequences can be for other road users if you do not resolve traffic situations according to agreements and make unsafe choices
Vehicle control and manoeuvres	Technical control of the vehicle		Knowing the risks you run if technical control is insufficient and knowing what to do to prevent these risks	Know how well you control the vehicle technically and choose situations in such a way that you can technically handle them	Knowing what the consequences can be for other road users if technical control is insufficient

**Task-related competences
Assessment of learning
Summative assessment**

**Personality-related competences
Assessment for learning
Formative assessment**



CHALLENGES NEW DRIVER TRAINING CURRICULUM

- Shift from exam-oriented approach to an education-oriented approach
- Driving instructors need higher-order training skills
 - More emphasis on coaching competences
 - Create a constructive and including learning environment
 - Stimulate self-reflection: arrange possibilities for the learner driver to reflect on training experiences

TRAINING: 5 DEVELOPMENT LINES

1

Increasingly complex traffic tasks

Limited traffic task environment



Simple task environment



Complex task environment



Most complex task environment



2

Fading support driving instructor: from instruction to coaching

3

Increasing driver independence: from support to independence



Phase 1



Phase 2



Phase 3



Phase 4

4

GDE: from operational level to life task level

5

Skills: from basic skills tot higher-order skills



THANK YOU!!

- Niki Hukker: niki.hukker@rhdhv.com
- Jan Vissers: jan.vissers@rhdhv.com