THE LEARN! MANUAL FOR DEVELOPING AND EVALUATING TRAFFIC SAFETY AND MOBILITY EDUCATION ACTIVITIES

LEARN!
LEVERAGING EDUCATION TO ADVANCE ROAD SAFETY NOW!

ETSC
European Transport Safety Council

OVERVIEW OF THE MANUAL'S MODEL

1

ANALYSE

Analyse how the problem manifests itself. What are the target group's conditions and needs? Link the problem area to your strategic plan and identify the factors that contribute to unsafe behaviour.

2

DEFINE OBJECTIVES

Specify the objectives for the activity. Take a first look at the test and evaluation designs and a glance at the costs.

3

ACHIEVING CHANGE

By now you have decided whether the activity's outcome is related to actual behaviour or intentions to engage in the behaviour, and whether the outcome will be knowledge, skills, attitudes or (intended) behaviour. Define what you seek to modify and how you will modify it.

4

DESIGN

Based on the previous steps and taking into account the 5E model (engage, explore, explain, elaborate and evaluate), design your activity. Finalise the evaluation plan, specify what will be evaluated, and determine the design and method of the evaluation. Make a plan for production and implementation.

5

PRE-TEST

Make a pre-test design and test your activity. Based on the results, make changes if needed. You may therefore have to go back to Step 2, 3 or 4.

6

PRODUCTION

Produce the materials necessary for the activity, whether digital, printed or both.

7

IMPLEMENT

Make a communications strategy with both bottom-up and top-down approaches. Include cooperation with other actors, like communities, schools, parents, police, and others.

8

EVALUATION

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

THE LEARN! MANUAL

FOR DEVELOPING AND EVALUATING TRAFFIC SAFETY AND MOBILITY EDUCATION ACTIVITIES

This publication is part of the LEARN! project. The project is coordinated by ETSC and supported by Fundación MAPFRE and the Flemish Foundation for Traffic Knowledge (VSV).
www.trafficsafetyeducation.eu

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THE LEARN! MANUAL...

...sets out guidelines for developing and evaluating activities and programmes for traffic safety and mobility education

...can also prove useful to schools, ministries, authorities and organisations when deciding on which activities and projects to buy or fund

...aims to facilitate the exchange of best practice across Europe

EXECUTIVE SUMMARY

The LEARN! Manual sets out guidelines for developing and evaluating activities and programmes for traffic safety and mobility education. It is envisaged as a starting point for those who design, test, implement and evaluate educational activities on traffic safety and mobility, and are embarking upon the creation of new, or updating existing, activities. The manual presents recommendations, criteria and guidance that should ensure qualitatively sound educational activities in an accessible way. It is not envisaged as an academic guidance document that sets out every step and aspect in exhaustive detail, however it contains references per section to such documents for developers who are inspired to read further into specific topics or aspects.

The LEARN! Manual can also prove useful to ministries, authorities, agencies and organisations when deciding on which (proposals for) activities and projects to fund, as the guidelines reflect a list of minimum criteria that should be included or be given thought to, in order to ensure qualitatively sound material. In a similar way, the LEARN! Manual can also be useful for head teachers, traffic contact teachers and regular teachers when they select which material to use.

Moreover, the LEARN! Manual aims to facilitate the exchange of best practice across Europe, as through the development of common terminology it will be easier to share experiences and learn from each other.

Part I provides some general thoughts about traffic safety and mobility education and sets out definitions and the scope of this manual. Part II and Part III are the core of this manual. Part II sets out the guidelines for designing, testing, implementing and evaluating traffic safety and mobility activities. Part III contains the handbook which provides detailed information and explanations of the guidelines' steps:

- The model's starting point is an analysis of the problem and the possible solutions (Step 1).
- Based on this analysis, you will be able to specify the objectives for the activity (Step 2).
- The outcomes of these steps, combined with insights from behavioural change models (Step 3), will help you in designing the activity (Step 4).
- It is then essential to pre-test the activity (Step 5), and adapt the design, if necessary.
- Subsequently produce the materials necessary for the activity (Step 6) and implement it (Step 7).
- Evaluating the activity (Step 8) will then tell you if the objectives for your activity were reached or not, and which elements have contributed to these results, following which you can write a final report on the results and the lessons learnt during the activity.

Part IV subsequently provides examples on how to use the LEARN! Manual's model in practice.

PART I

INTRODUCTION

01

I.1 GENERAL INTRODUCTION

With over 18,800 people still dying on roads in the European Union in 2020, it is vital that every measure is taken to improve road safety.[1] In addition to vehicle safety measures, infrastructure engineering and enforcement, traffic safety and mobility education has an important role to play in making Europe's roads safer. It is considered an essential part of an integrated approach to traffic safety, as education provides the possibility for people to learn how to participate in traffic safely.

The LEARN! project (Leveraging Education to Advance Road safety Now!) by the European Transport Safety Council (ETSC), Fundación MAPFRE and the Flemish Foundation for Traffic Knowledge (VSV), aims to improve the quality of traffic safety and mobility education in Europe by providing information, tools and resources to education experts as well as policy recommendations to decision makers. The project focuses in particular on the education of children and youngsters, as they have a right to grow up safely, and traffic safety should therefore be an important and natural part of their everyday life.

"Contracting Parties will take the necessary measures to ensure that road safety education be provided on a systematic and continuous basis, particularly in schools at all levels."
Vienna Convention on Road Traffic Article 3(5bis)

As a first step, the **'LEARN! Status Report'** set out the status of traffic safety and mobility education in Europe.[2] It showed that the provision of such education differs widely across Europe, with most countries not fulfilling their commitment to provide traffic safety and mobility education on a systematic and continuous basis, notably in schools at all levels.[3]

The **'LEARN! Key Principles Report'** subsequently set out 17 recommendations that should be implemented in all countries in order to ensure that everyone – and especially children and youngsters – receives high quality traffic safety and mobility education. These Key Principles are further discussed in section 4 of this introduction.

This publication, the **'LEARN! Manual'**, sets out guidelines for developing and evaluating activities and programmes for traffic safety and mobility education. The manual is therefore primarily aimed at those who design, test, implement and evaluate educational activities and material related to traffic safety and mobility.

The aim of this manual is to provide inspiration, recommendations, practical guidance and best practice examples for the development and evaluation of material and activities, while at the same time reflecting a minimum list of criteria that should be taken into account in order to ensure high quality educational material and activities.

The manual is envisaged as the starting point for those developing activities on traffic safety and mobility education. It presents recommendations, criteria and guidance that should ensure qualitatively sound educational activities in an accessible way. It is not envisaged as an academic guidance document that sets out every step and aspect in exhaustive detail, however it contains references in each section to such documents for activity developers who are inspired to read further into the specific topics or aspects.

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[1] Figure for EU27 in 2020. ETSC (2021), 15th Road safety performance index report. http://bit.ly/PINAnnual2021
[2] ETSC (2019), The Status of Traffic Safety and Mobility Education in Europe. http://bit.ly/LearnStatus
[3] Except for Cyprus, Iceland, Ireland, Kosovo and Malta, all European countries have signed the UNECE's Convention on Road Traffic (also known as the "1968 Vienna Convention") and have through Article 3(5bis) committed to "take the necessary measures to ensure that road safety education be provided on a systematic and continuous basis, particularly in schools at all levels." United Nations Economic Committee for Europe (UNECE) (1968/2006), Convention on Road Traffic (2006 Consolidated Version). http://bit.ly/2RRMK0b

All resources are freely available on the LEARN! website:

www.trafficsafetyeducation.eu

The LEARN! Manual can also prove useful to ministries, authorities and agencies when deciding on which (proposals for) activities and projects to fund, as the guidelines reflect a list of minimum criteria that should be included or at least considered, in order to ensure qualitatively sound material. In a similar way, the LEARN! Manual can also be useful for head teachers, traffic contact teachers and regular teachers when they select which material to use.

Moreover, the LEARN! Manual aims to facilitate the exchange of best practice across Europe, as through the development of common terminology it will be easier to share experiences and learn from each other.

The remainder of this introductory part will set out the position of education in the safe system approach, define traffic safety and mobility education, and other relevant terms used in this manual, as well as introduce the LEARN! Key Principles and explain how they are interlinked with this LEARN! Manual.

Part II and Part III are the core of this manual. Part II sets out the guidelines for designing, testing, implementing and evaluating educational activities on traffic safety and mobility. Part III contains the handbook which provides detailed information and explanations of the guidelines' steps.

Part IV in turn shows how the manual's model can be used by providing examples. Finally, a more detailed description of the developmental psychological requirements of children is set out in the annex.

I.2 EDUCATION AS PART OF A LARGER APPROACH

Collisions, as well as road deaths and injuries, are almost always the result of a combination of factors. Human error is very often the dominant weak link, but underlying errors in the design of the traffic system such as poor infrastructure or unclear regulations also play an important role. A "safe system" approach, which focuses on mapping out and eliminating all factors that increase the risk of collisions or increase the severity of collisions, is therefore considered to be international best practice in road safety by the World Health Organisation[4] and the International Transport Forum.[5,6]

In a Safe System approach, the vulnerability of humans is recognised, as is the fact that they make mistakes and do not always adhere to rules. This applies even more to children and youngsters, who also have a number of physical and psychological limitations that can compromise their safety. A safe system takes these characteristics and limitations into account ("safety by design"). This means that the traffic environment must be in line with the road users' capacities, and with the impulses that humans have by nature.

Traffic Safety and Mobility Education should never stand alone

In a Safe System approach, the three 'E's of road safety measures: Engineering (infrastructure and vehicles), Education (education, training and information) and Enforcement (regulations and enforcement) are by definition combined. By this logic, *traffic safety and mobility education should never stand alone, but be combined with other measures that address the underlying factors of road safety.*

[4] WHO (n.d.), Global Plan for the Decade of Action for Road Safety 2011-2020. https://bit.ly/2R0AdsQ
[5] ITF (2008), Towards Zero: Ambitious road safety targets and the safe system approach. https://bit.ly/3dwfKpp
[6] ITF (2016), Zero road deaths and serious injuries. Leading a Paradigm Shift to a Safe System. http://bit.ly/2QF2shw

A simple example to illustrate this: if at certain intersections many collisions occur with children who cycle to and from the school, one can opt to intensify traffic education efforts in schools so that the children know exactly what dangers they must specifically look out for and what rules they must adhere to. However, an in-depth analysis of the collisions could show that traffic flows at those specific intersections are not conflict-free, so that cyclists systematically run the risk of being hit by, for example, right-turning car traffic (left-turning in the United Kingdom and Ireland). This is an underlying system error. In this case it is obvious that the increased efforts for traffic safety and mobility education should be combined with measures to eliminate the system error. In concrete terms, the traffic flow at the intersections in question may be improved by adjusting the traffic lights so that all possible conflicts between cyclists and cars are eliminated (provided that cyclists and car drivers adhere to the rules).

Moreover, one should never forget that the safety of children is more often than not in the hands of other road users. Road users should never expect children to behave as "small adults" even in relatively easy traffic situations, and drivers should show extra care in relation to children.[7]

I.3 DEFINITIONS AND SCOPE

In this section, we will define several terms in order to explain how they are used throughout the manual. The scope of the manual is also described in more detail.

Traffic Safety and Mobility Education

TRAFFIC SAFETY AND MOBILITY EDUCATION COVERS ALL MEASURES THAT AIM AT POSITIVELY INFLUENCING TRAFFIC BEHAVIOUR PATTERNS, WITH AN EMPHASIS ON:

- Gaining knowledge and understanding of traffic rules and situations;
- Developing and improving skills through training and experience;
- Strengthening and/or changing attitudes and intrinsic motivations towards risk awareness, personal safety and the safety of other road users in order to contribute towards a safety-minded culture;
- Providing the tools necessary for a well-informed choice of transport mode.

The aim of traffic safety and mobility education is to positively influence behaviour patterns that result in safer traffic. The transfer of knowledge and gaining an understanding of traffic rules and situations are the basis of traffic safety and mobility education, as is the development and improvement of the skills needed to participate safely in traffic through training and experience.

Traffic safety education also encompasses those measures that strengthen or change one's attitude and intrinsic motivation towards safe participation in traffic, with the aim of bringing about a safety-minded culture. Self-insight and reflection on one's own and others' attitudes, motivations and behaviours are important factors.

Lastly, traffic safety and mobility education can help young road users make informed decisions about which mode of transport to take. The promotion of active and sustainable transport modes is relevant here, as active mobility enhances the skills needed for participating in traffic as a pedestrian, a cyclist or as a driver.

The definition is explained in greater detail in Part I of the LEARN! Status Report.[8]

[7] "Drivers shall show extra care in relation to the most vulnerable road-users, such as pedestrians and cyclists and in particular children, elderly persons and the disabled." Article 7. United Nations Economic Committee for Europe (UNECE) (1968/2006), Convention on Road Traffic (2006 Consolidated Version). http://bit.ly/2RRMK0b

[8] ETSC (2019), The Status of Traffic Safety and Mobility Education in Europe. http://bit.ly/LearnStatus

Activities

This manual presents guidelines for developing and evaluating activities for traffic safety and mobility education. With the term 'activities', we mean to capture all educational measures that aim at positively influencing traffic behaviour patterns. These activities can for example be teaching material, events, workshops, programmes, games, competitions, virtual reality (VR) applications, tests, and exams.

Scope of the Guidelines

The LEARN! Manual focuses on educational activities for children and youngsters aged 6 to 17 years old given at primary and secondary schools,[9] as this is the target group of the vast majority of educational activities. It therefore focusses on all activities given by both formal (e.g. teachers) and non-formal (e.g. external experts, NGOs, police officers, etc) education providers, both in the classroom and on outdoor premises as part of the school's education.

It is important to note that the guidelines can be applied to activities for other target groups as well, such as kindergartens, sport clubs, youth organisations (such as scouts), holiday camps, study centres, and at home. It can also be applied to different target age groups, such as the elderly. However, no specific references to or examples for those other target groups will be made in the manual, given its focus on primary and secondary education.

THE DIFFERENCE BETWEEN THE SUBJECT AND EDUCATION

Traffic safety and mobility education may be given at schools as a regular subject, just as maths and geography are. As explained previously, however, our definition of traffic safety and mobility education is broader, and encompasses all measures that aim to positively influence traffic behaviour patterns. This includes the activities that are provided to children and youngsters in the context of traffic safety and mobility education as a subject; however, it also includes other related activities at schools that are not given as part of the subject, for example when pupils receive it as extra education during school hours (often as part of a special day or week), when pupils in secondary schools have to submit an essay on personal traffic risk perception as part of language lessons, or traffic safety and mobility considerations during school trips.

Developers

The term 'developers' is used throughout the Manual to refer to the person or persons involved in the preparation and design of the activity, e.g. those that conduct the needs assessment, formulate the outcomes and objectives, and design the shape and form of the actual activity.

Depending on the composition and structure of your organisation, different people in your organisation may be responsible for the different tasks we have assigned to the role of the developer. For example, you and your direct team may be responsible for gathering all the relevant data necessary for the needs assessment (in Step 1), which you may then hand over to a team of designers. You may then be involved in a supporting capacity to the designers in defining the right outcomes and objectives (in Step 2) and facilitating their application of a theoretical model of behaviour (in Step 3), before they design the eventual activity (in Step 4).

For ease of reading, we have assigned all these responsibilities to the role of the developer. In your project plan you should however clearly define who in your organisation is responsible for which tasks

[9] Please note that depending on your country, children might start primary education at an earlier age or are still in secondary school at a later age. Throughout the manual you should therefore interpret this age range in your national context. Part I of the LEARN! Status Report sets out more information on the scope of the LEARN! project, and why the age range 6 to 17 was chosen. http://bit.ly/LearnStatus

and who is expected to provide support. It is also possible for some of these tasks to be performed by third parties, for example a graphics company that designs the visuals (in Step 4) or production companies printing the material (in Step 6), and this should also be reflected in your project plan accordingly.

Ideally, pre-testing and evaluating is not done by the developers but by others. Furthermore, developers may be involved in the implementation of the activity, but this is not necessarily the case.

Evaluators

Evaluators are those persons responsible for conducting the baseline measurement (in Step 2), the pre-test (in Step 5), and the evaluations (in Step 8). Ideally, these evaluators should not be the developers of the activity, in order to prevent the results from being affected by bias.

Teachers

For ease of reading, the term 'teachers' is used to refer to those persons who will implement the activity.[10] Given the focus of the manual, usually the teacher of the class or the traffic contact teacher provides the activities to the children. However, it may also be external experts who come to school and give the lessons.

I.4 LEARN! KEY PRINCIPLES

The LEARN! Key Principles report sets out 17 recommendations that should be implemented in all European countries in order to ensure that everyone – especially children and youngsters – receives high quality traffic safety and mobility education.[11]

The 17 Key Principles, which are accompanied in the report by best practice examples illustrating how these principles can be applied in practice, are categorised in five key groups:

- Ensure the right to receive traffic safety and mobility education
- Engage and support schools
- Ensure high quality education
- Facilitate framework conditions
- Involve all relevant stakeholders

The guidelines presented in this manual primarily aim to support the Key Principles on ensuring high quality education. In particular, the guidelines in this manual reflect minimum criteria for the development of educational activities. The guidelines thereby aid the implementation of Key Principle #11 on using quality standards, as they guide developers to design qualitatively sound activities.

The guidelines also help implement Key Principles #10 on keeping the material up-to-date, #12 on undertaking tests and evaluating, and #13 on the assessment of pupils and their self-assessment, by providing guidance on how these aspects should be incorporated in the activity and subsequently conducted.

[10] Except for Step 7 on the implementation of the activity. This is because more detail is given regarding the different roles of the different actors in Step 7, and the term 'teachers' is therefore used in the traditional meaning of the word.
[11] ETSC (2020), Key Principles for Traffic Safety and Mobility Education. http://bit.ly/LearnKeyPrinciples

17 KEY PRINCIPLES
FOR TRAFFIC SAFETY AND MOBILITY EDUCATION

ENSURE THE RIGHT TO RECEIVE TRAFFIC SAFETY AND MOBILITY EDUCATION

1. All children and youngsters should receive high quality traffic safety and mobility education with continuity and progression
2. Integrate traffic safety and mobility education in the curricula for schools, including a minimum amount of teaching hours
3. Set strategic, tactical and operational goals
4. Allocate sufficient resources for traffic safety and mobility education

ENGAGE AND SUPPORT SCHOOLS

5. Engage and support school management
6. Motivate schools to have a traffic safety and mobility policy
7. Appoint a traffic contact teacher at school
8. Strengthen teachers' competence and support them

ENSURE HIGH QUALITY EDUCATION

9. Ensure that traffic safety and mobility education is about knowledge, skills, attitudes and motivations as well as training in traffic
10. Keep traffic safety and mobility education up to date
11. Use quality standards
12. Undertake tests, process and/or outcome evaluations
13. Assess pupils and let pupils evaluate themselves

FACILITATE FRAMEWORK CONDITIONS

14. Use interdisciplinary material as a means to teach traffic safety and mobility education
15. Educate student teachers about traffic safety and mobility education during their training
16. Follow-up to ensure traffic safety and mobility education is taught

INVOLVE ALL RELEVANT STAKEHOLDERS

17. Involve pupils, students, parents and all relevant stakeholders

DOWNLOAD THE REPORT WITH MORE INFORMATION AND BEST PRACTICE EXAMPLES FOR FREE AT:
WWW.TRAFFICSAFETYEDUCATION.EU/KEY-PRINCIPLES

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ETSC European Transport Safety Council

Fundación MAPFRE

VSV IEDEREEN MEE VOOR VEILIG VERKEER

FURTHER READING

More information on how traffic safety and mobility education is taught to children and youngsters in European countries, and how it differs across Europe, can be found in the **LEARN! Status Report.**

- ETSC (2019), The Status of Traffic Safety and Mobility Education in Europe. http://bit.ly/LearnStatus

The **LEARN! Key Principles** report sets out 17 recommendations to ensure everyone receives high quality traffic safety and mobility education, accompanied by illustrative examples on how to apply those recommendations. It also supplements the section on education as part of a larger approach, as it lists 10 arguments as to why traffic safety and mobility education is important.

- ETSC (2020), Key Principles for Traffic Safety and Mobility Education http://bit.ly/LearnKeyPrinciples

More information on **education as part of the safe system approach** can be found in the extended paper on the LEARN! Website.

- ETSC (2021), Education as Part of the Safe System Approach. https://bit.ly/2SIOgHF

The International Transport Forum's publications provide more information on the **safe system approach,** and the role of education as part of it.

- ITF (2008), Towards Zero: Ambitious road safety targets and the safe system approach. https://bit.ly/3dwfKpp
- ITF (2016), Zero road deaths and serious injuries. Leading a Paradigm Shift to a Safe System. http://bit.ly/2QF2shw

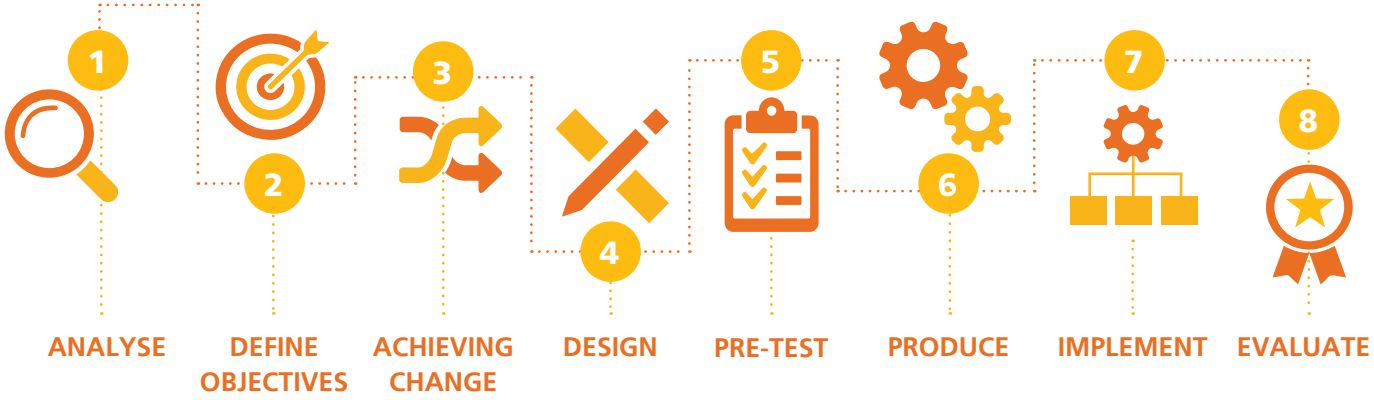
PART 2

GUIDELINES

02

The guidelines set out in this part will help guide you as a developer to take the necessary steps to ensure that all aspects of the activities you develop have been carefully considered. If all steps are well executed, the result should be a qualitatively sound activity.

The graphic below presents the guidelines' steps and key points visually.



The starting point is an analysis of the problem and the possible solutions (Step 1), based on which you will be able to specify the objectives for the activity (Step 2). The outcomes of these steps, combined with insights from behavioural change models (Step 3), will help you in designing the activity (Step 4). Pre-testing the activity (Step 5), and adapting the design if necessary, is essential before starting the actual production (Step 6) and subsequent implementation (Step 7). Evaluating the activity (Step 8) will tell you if the objectives for your activity were achieved or not, and which elements have contributed to these results, following which you can write a final report on the results and the lessons learnt during the activity.

It is important to note that, while the guidelines' sections seem to imply a certain chronology as it is presented as a series of steps, you should not see it as a merely linear process. Instead, the process is meant to be iterative, meaning that you have to go back and forth between the different sections and steps if and when necessary.[12]

For example, the results of pre-testing your activity may require you to go back to the design step, in order to implement changes based on the lessons learnt from pre-testing. Another example is evaluations: you should not start to think about evaluating only after the activity is implemented, but rather incorporate it as an integral part of the activity's design.

The guidelines' steps are set out in greater detail in Part III, the handbook. The steps include several short sections to indicate that certain steps should already be considered or taken into account even though the step is only described in full detail in a later part of the handbook, or when results of a step may require you to revisit earlier steps.

Furthermore, the guidelines and the handbook assume that you have some knowledge in general project planning and management, as it would go beyond the scope of this manual to address all those aspects. Important in this regard is to have a project plan that sets out key variables for the activity's success, such as time schedule, costs, scope, responsibilities, risk assessment, quality, communication and resources.

[12] The structure of the guidelines is inspired by the 'intervention mapping' structure as developed by Maastricht University, which is "a protocol for the design of health education & promotion programs, guiding promotors through a series of steps that will assist them in theory-based and evidence-based program development. Although presented as a series of steps, the planning process is seen as iterative rather than linear and planners move back and forth between tasks and steps. The process is also cumulative, with each step based on a previous step."

LEARN! GUIDELINES

Before You Start

- ☐ Look for applicable national goals and develop your activity in line with them
- ☐ Ensure that your activity is developed in line with the relevant LEARN Key Principles
- ☐ Ensure that the activity encourages the use of the 5E model

1

STEP 1 – STRATEGY, PROBLEM ANALYSIS & NEEDS ASSESSMENT

- ☐ Create a general strategy for your target age group, or, if already available, update it with the latest information, if necessary
- ☐ Create a specific strategy for your activity
  - o Describe your activity's problem area
  - o Identify the behavioural and circumstantial aspects of the problem
  - o Identify the factors that contribute to the unsafe behaviour
  - o Specify the target groups
  - o Describe the background for the activity (previous activities, relationship to other measures and activities)
  - o Include a reflection on the budget available for the activity
  - o Include an initial reflection on how you envisage to promote the implementation of the activity

2

STEP 2 – FORMULATING OUTCOMES AND OBJECTIVES

- ☐ Formulate the outcomes, objectives and output objectives for your activity
- ☐ Make an overview of the costs and draft a budget for your activity
- ☐ Have an initial consideration of the design for your activity's pre-tests and evaluations
- ☐ Conduct the baseline measurement for your activity

3

STEP 3 – ACHIEVING CHANGE

- ☐ Select and apply a theoretical model of behaviour to your activity
- ☐ Prepare your theory of change one-pager

4

STEP 4 – DESIGN

- ☐ Design your activity
- ☐ Finalise your evaluation plan
- ☐ Plan for production and implementation

5

STEP 5 – PRE-TESTING

- ☐ Develop a pre-test design specific to your activity
- ☐ Make mock-ups of your activity's material
- ☐ Perform pre-tests
- ☐ Depending on the results of the pre-test, adjust the activity's objectives and design based on the results of pre-testing, if needed, or start all over again.

6

Step 6 – Production

- ☐ Produce the material for the activity

7

Step 7 – Implementation

- ☐ Create an implementation plan and a dedicated communications strategy, including top-down and bottom-up approaches and focusing on direct communication and, where relevant, press releases
- ☐ Execute your implementation plan and communications strategy

8

Step 8 – Evaluation

- ☐ Execute your evaluation plan
- ☐ Based on the results of the evaluation(s), adjust your activity if needed and decide when to evaluate again
- ☐ Ensure quality assurance
- ☐ Write a final report

PART 3

THE HANDBOOK

03

This part explains the guidelines' steps by providing more detailed information on aspects that should be considered and kept in mind while developing, implementing and evaluating your activity.

BEFORE YOU START

There are three things you should be aware of before you start developing your activity – and keep them in mind throughout the development process: your country's national goals, the LEARN! Key Principles, and the 5E model.

National Goals	LEARN! Key Principles	5E Model
		

NATIONAL GOALS

It is important to develop your activity in line with the national goals of your country. If applicable to your country, take into account the goals set out for traffic safety and mobility education in the curricula for schools. If it is not included in the curricula in your country, then see if there are other governmental policies that set out goals for traffic safety and mobility education. Also look for possibilities in as many subjects as possible – many countries have relevant interdisciplinary themes and these usually include something which you can relate to traffic safety and mobility. Also take into account the European and national goals set for improving road safety.

Make sure that the objectives of your activity contribute towards achieving these goals.

LEARN! KEY PRINCIPLES

Keep in mind the 17 LEARN! Key Principles when developing your activities.[13] These are described in more detail in the introduction of this manual. Pay special attention to the group of Key Principles on providing high quality education, such as ensuring that traffic safety and mobility education is about knowledge, skills, attitudes and motivations as well as training in practice (Key Principle #9). However, also keep in mind the other groups of Key Principles – for example consider developing an interdisciplinary activity (Key Principle #14).

[13] ETSC (2020), Key Principles for Traffic Safety and Mobility Education. http://bit.ly/LearnKeyPrinciples

THE 5E MODEL

When developing educational activities, it is recommended that you base these on the 5E model. It is furthermore recommended that the eventual activity is designed in a way that allows teachers to follow and use this 5E model as far as possible.

The 5E Model explained

Much research has been done on what yields good learning and on what the pupil has gained when the lesson is over. It is difficult to draw categorical conclusions, because there are so many variables in a learning situation. Moreover, pupils differ greatly and have different learning aptitudes. Much of the research, however, points out that pupil-active teaching, when followed up with reflection, application, recapitulation and continuous assessment, yields good results. Pupils must be motivated and involved, and teaching must be based on the pupil's prior knowledge. Furthermore, pupils should have the opportunity to explore, explain and extend their knowledge and understanding. Continual assessment (formative assessment) is recommended as an integrated part of teaching, and expectations should be placed on the pupils ('learning pressure'). In addition, it appears that variation in both teaching methods and learning arenas is important for pupil motivation and hence learning.

The 5E model is a tool to support teachers in the planning, implementation and evaluation of learning for the actively participating pupil.[14] It is also a tool to support you as a developer in designing and implementing the activity, as well as a tool that is very useful when evaluators test and evaluate the activity.

It is called the 5E model simply because all five pedagogical concepts start with the letter E: engage, explore, explain, elaborate, evaluate. This means:

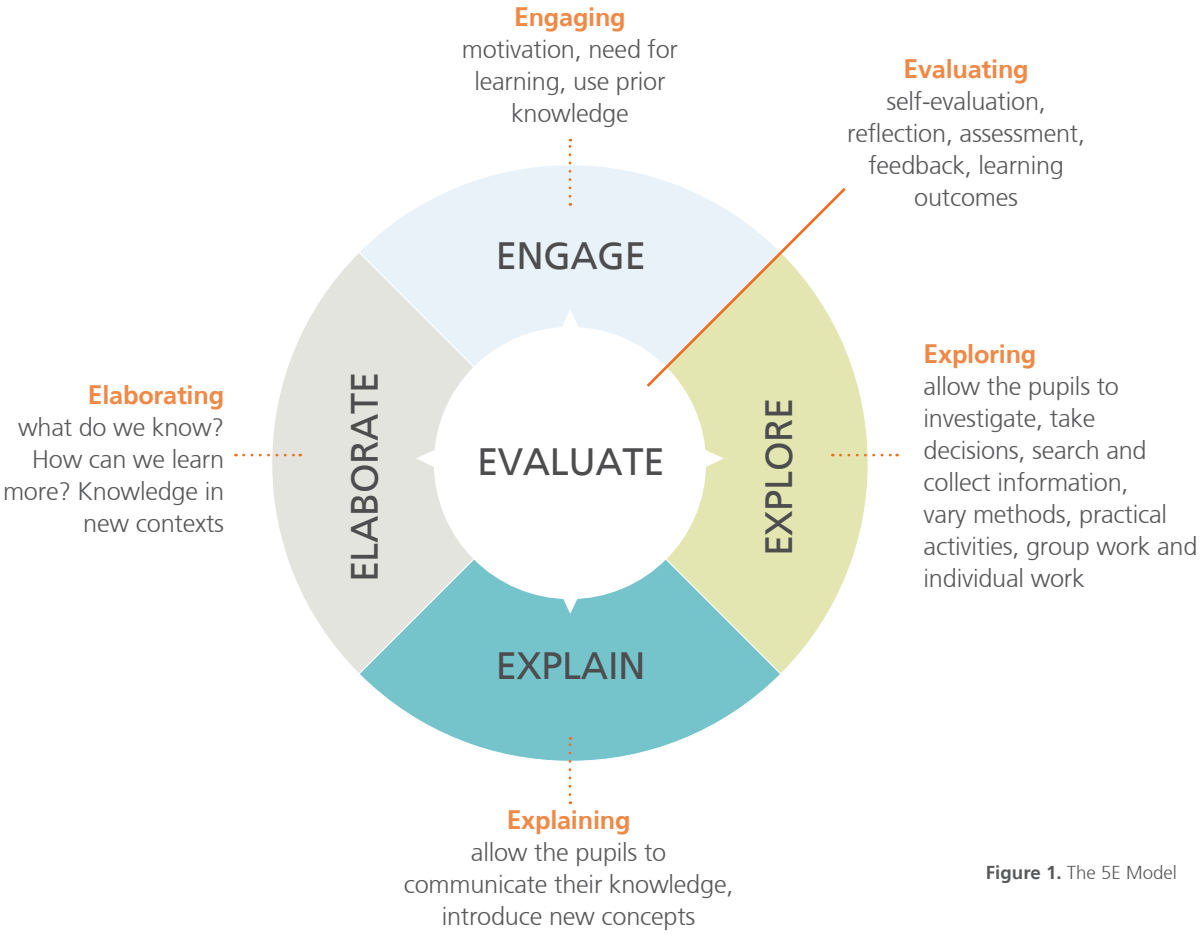


Figure 1. The 5E Model

[14] More details about the 5E model as a tool for teachers can be found in the Norwegian Council for Road Safety's model for behaviour modification. Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

Evaluation at the centre

The word 'evaluate' is placed in the centre of the model because the purpose of the evaluation is to promote learning, and because evaluation occurs in all phases of teaching. The term evaluation covers three types of assessment: continuous evaluation (formative assessment), final evaluation (summative assessment) and self-assessment.

Evaluations must be conducted continuously, be varied, and be a natural part of the instruction given, whether orally or in writing. The pupils should evaluate their own learning and understanding, as well as the quality of their own work. The teacher in turn should evaluate the pupils' learning in relation to the learning outcomes.

The evaluation should show whether the pupils have attained the desired outcome, e.g. gained the right knowledge, skills, behaviour and/or attitudes. It thereby provides important feedback that supports the pupils' learning, as it also allows for appropriate action to be taken if this is found not to be the case.[15]

Encourage the use of the 5E Model in your design

When you are designing an activity, make sure that the activity itself encourages the teacher to use the 5E model as a tool for reflection to develop, plan, implement and evaluate teaching sessions (e.g. lessons). It does not mean that you cannot give a lecture as an activity; however, by understanding and applying the principles of this model, you are more likely to succeed in giving children the possibility to be engaged and to explore, explain, elaborate and evaluate themselves - both as a process and as a result. The 5E model can furthermore be used for both long-term planning as well as planning individual lessons.

A checklist on applying the 5E model can be found at the end of this 'Before You Start' section, which will help you ensure that your activity encourages the use of the 5E model.

Encourage the use of the 5E Model in the testing and evaluation of your activity

Encourage the evaluators to use the 5E model as a tool when testing and evaluating your activity. Using the 5E model will help the evaluators determine whether the activity is successful in engaging the pupils and make them explore, explain, elaborate and evaluate.

Example 1 shows how all the steps can be applied in the development, implementation and evaluation of an activity. It also shows how the 5E model can be applied to an activity's design.

[15] LEARN! Key Principle #13 'Assess the pupils and let pupils evaluate themselves.' ETSC (2020), Key Principles for Traffic Safety and Mobility Education. http://bit.ly/LearnKeyPrinciples

CHECKLIST

- ☐ Look for applicable national goals and develop your activity in line with them
- ☐ Ensure that your activity is developed in line with the relevant LEARN Key Principles
- ☐ Ensure that the activity encourages the use of the 5E model

CHECKLIST FOR APPLYING THE 5E MODEL

The checklist below will help you ensure that your activity encourages the use of the 5E model.

Engagement

- ☐ Do you motivate and create curiosity and interest?
- ☐ Do you create a need for learning?
- ☐ Do you identify the pupils' prior knowledge and attitudes?
- ☐ Do you link the learning material to what the target group already knows?
- ☐ Do you focus on the learning objective(s)?

Exploration

- ☐ Do you create a common learning platform?
- ☐ Will the pupils investigate, make decisions, gather information, interpret, and ask questions?
- ☐ Do you vary methods?
- ☐ Do you guide the pupils and support building a bridge between prior knowledge and new knowledge?

Explanation

- ☐ Can the pupils communicate their knowledge?
- ☐ Do you introduce new words, concepts, models, give examples and explain?
- ☐ Do you challenge existing understandings of concepts?

Elaborate

- ☐ Do you make demands on the pupils to proceed beyond their current level, and find better and more comprehensive explanations?
- ☐ Do you ask new questions to explore: What do we know? How can we find out more? How can this be explained?
- ☐ Do you apply knowledge in the field to new contexts?

Evaluation

- ☐ Do you have a plan for self-evaluation, ongoing evaluation and final evaluation?
- ☐ Do you reflect on how and why different activities engage and motivate?
- ☐ Do you evaluate prior knowledge and learning processes in relation to the learning objectives?
- ☐ Do you provide feedback on arguments, explanations and application?
- ☐ Do you evaluate learning outcomes?

FURTHER READING

With regard to **road safety goals,** the European Union has a vision to have zero road deaths by 2050, "Vision Zero". As targets, the European Union has set a **goal to reduce the number of road deaths by 50%** between 2020 and 2030 as well as a goal to **reduce the number of serious injuries by 50%** during the same period. European countries have individually also set their own goals in their national road safety strategies and action plans.

- European Commission (2019), EU Road Safety Policy Framework 2021-2030 – Next steps towards "Vision Zero". https://bit.ly/3rVCBBf
- An overview of national road safety strategies and action plans is available on the website of the European Commission. http://bit.ly/2Nuf77a

The **5E Model** is extensively described in the Norwegian Council for Road Safety's Model for Behaviour Modification, starting from page 29. It notably elaborates on the **teacher's role in the 5E Model** on pages 30-31, as well as the **pupil's role** on pages 31-32. It furthermore provides an **example on the use of the 5E Model** with a case study on safe bicycle use on pages 32-33.

- Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

More information on the **intervention mapping structure** can be found on the website: www.interventionmapping.com. The authors have also published a book on the intervention mapping structure and how to use it.

- Bartholomew Eldrigde, Markham, Ruiter, Fernàndez, Kok & Parcel (2016), Planning health promotion programs: An Intervention Mapping approach (4th ed.). Hoboken, NJ: Wiley.

1 STRATEGY, PROBLEM ANALYSIS & NEEDS ASSESSMENT

The needs assessment is a fundamental part of the activity. In your aim to prevent the next injury or death, you might be tempted, after having selected a problem, to skip straight to the activity.[16] However, by first looking into the needs of your target group, children between 6 and 17 years old, you can best determine the appropriate solutions.

The best method for the problem analysis and needs assessment would be to work at two levels: a general level and an activity level.

1.1 THE GENERAL LEVEL: A STRATEGY FOR THE TARGET AGE GROUP

The top level is a general strategy for the target age group. For this manual's target age group, it would be a general strategy for 6 to 17 year olds. However, as a 6 year old differs greatly from a 17 year old, it is in practice difficult to create an effective general strategy for our target age group as a whole. It would therefore be better to create different general strategies for different age ranges, for example young children, young teenagers, youngsters, etc. Depending on your country's school system, you may want to consider basing these strategies on the levels of education.

This general strategy is a document that is independent from the activity and describes the characteristics of the target age group. It includes information on:

- The number of killed and seriously injured persons in the target age group
- The characteristics of those killed and injured (e.g. gender, age, etc)
- The characteristics of the collisions (mode of transport, road type, geographical area/ province, causes (e.g. was the collision caused by the child?), etc)
- The timing of the collisions (time of year, day of the week, specific hours)
- The risk factors contributing to the injuries and deaths (as also identified by studies)
- The psychological and cognitive characteristics of the target age group
- If you want to boost your research, you can even perform a cost analysis research or retrieve relevant information on existing studies.

You can obtain information about the target age group from (national) police-reported crash/ collision data, hospital data, injury statistics, in-depth accident studies, and ministerial records (e.g. from the health, transport and environment ministries).

You can also obtain both qualitative and quantitative information from interviews, surveys, focus groups, participant observation, theories from, for example, behavioural and educational sciences, and experiences from your own efforts and those of others.

[16] Ellis (2009), Planning an evidence-based and fundable injury-prevention program. Journal of emergency nursing 35:5.

With regards to psychological and cognitive characteristics of the target age group, the annex to this manual provides more information on the developmental psychological requirements and road user characteristics of children (6-14 year olds).

For the strategy level, it is also relevant to include a theory of change one-pager for what is to be achieved for the target group (see Step 3.2 for more information), and in addition to have a specific theory of change one-pagers for the different age groups within the target group (based again on a division that makes sense for your country's school system, e.g. one specific for 6-9 year olds, one for 10-12 year olds, etc).

The general strategy should also include an overview of actors with whom you can cooperate to implement the activities. Cooperation with other actors is described in greater detail in Step 7.2.

See **example 2** setting out the Danish Road Safety Council's General Strategy for 6-14 year old children.

1.2 THE ACTIVITY LEVEL: THE PROBLEM ANALYSIS AND NEEDS ASSESSMENT FOR THE SPECIFIC ACTIVITY

The second level is a strategy specific for your activity. It describes the problem area your activity aims to target and analyses how the problem is manifested, by identifying the behavioural and circumstantial aspects of the problem as well as the factors that contribute to the unsafe behaviour.

You supplement the information from the general strategy with the necessary additional data relevant for your specific activity. For example, if your activity focuses on distraction, you research and gather the necessary additional information on this. It may therefore not be necessary to start an in-depth problem analysis and needs assessment from scratch every time you develop a new activity, if you have a general strategy (or a previous related activity) that you can use as a starting point.

In addition to the description of the problem area, you may also want to briefly set out the background for the activity: What has happened in this area so far? How does this initiative relate to other relevant measures and other educational activities on traffic safety and mobility? Refer in this regard to the general strategy, national planning, relevant curricula, regulations and goals. And if applicable, describe how long the initiative has been in place, when the pilot project was completed, etc.

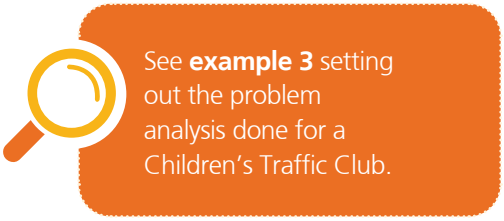
WHAT HOLDS THE KEY TO CHANGE?

The willingness to change behaviour is decided by the person's knowledge, motivation and commitment. The target group's background, knowledge and motivation will decide the educational strategy and methods, as well as the channels of influence that will be used. This analysis will help define whether it is knowledge, skills, attitudes or behaviour which your activity should focus on.

Examples are consequences of existing and new behaviour, personal risk, social norms, peer-group pressure and expectations from immediate social networks, social norms and rules of conduct, personal abilities and qualifications to engage in a particular behaviour. What would we need to develop or modify in the target group in order to achieve the expected outcomes?

Also take into account the lessons you learnt from previous experiences. This will not only help you avoid repeating previous mistakes, but also provides an opportunity to further develop and improve your work. It is therefore also important for your organisation to have or establish a good system for learning from experience.

Furthermore, consider whether the initiative would contribute something new or improve on existing material, and whether it is reasonable to expect the initiative will be used. If there already is a good, effective and well-used activity for a certain age group, there is no need to introduce new material for that age group, unless your activity can differentiate itself, for example a focus on other aspects, usable for other subjects, etc.



To prevent yourself from starting to plan an activity that you may not have the resources for, include in the activity's strategy a consideration of the activity's cost, budget and funding aspects (see Step 2.4). Also include an initial reflection in your activity's strategy on how you envisage promoting its usage (see Step 7.1).

Identify the behavioural and circumstantial aspects of the problem

After you have identified the extent of the problem you want to address with your activity, it is time to identify the behavioural and circumstantial risk factors associated with the problem. Behavioural factors are behaviours or lifestyles that contribute to traffic injuries, while circumstantial factors are social (e.g. socio-economic background of the parents) and physical factors (e.g. infrastructure).

The description of these factors should first be based on a thorough review of the literature. Data can be derived from the general strategy, self-reported surveys, observations and focus groups. You could also go out into the field and ask people or observe them: this is done through various actions such as holding community forums and conducting focus groups, surveys, interviews, and observations. These actions will engage the beneficiaries (pupils, teachers) of your activity in the planning process, and they allow you as a developer to see the issues as the community perceives them.

Based on the identified risk behaviours, you can set the behavioural objectives in Step 2 on formulating outcomes and objectives.

You may also have to consider whether the problem can be solved best through education, as it may be more appropriate to address it through other measures not covered by the manual – such as changes to infrastructure or vehicles, or through enforcement.

Identify the factors that contribute to unsafe behaviour

There are multiple factors that contribute to each of the behavioural and circumstantial risk factors, either by setting barriers or facilitating action. Contributing factors are classified as predisposing, enabling and reinforcing factors.[17]

By understanding these factors, you are better able to develop educational activities that are targeted, effective, efficient, and deliver results. Moreover, while predisposing, enabling and reinforcing factors do not constitute a human behaviour theory by themselves, a good

[17] Ransdell (2001), Using the PRECEDE-PROCEED Model to Increase Productivity in Health Education Faculty. The International Electronic Journal of Health Education, 4, 276-282. http://bit.ly/3bgTrVu

understanding of them will help you in Step 3 to identify the most appropriate theoretical model of behaviour for your activity and to develop an activity that can achieve change.

Predisposing factors are antecedents of the behaviour and provide motivation to action. These are an individual's knowledge, attitudes, values, or ethics, beliefs, personal preferences, and perceived abilities (self-efficacy) towards a specific behaviour (e.g. children overestimating distances and underestimating speed leading them to dangerous situations while crossing a road; or statements by children such as "child seats are for babies!"; or youngsters who think "Speeding is exciting!" or "I am capable of driving 15 km/h over the speed limit.").

Reinforcing factors include factors that reward or reinforce the continuation of behaviours. Society, friends, peers, family, and other significant people will either reward the person or punish him or her. "If the speeder's friends approve of and encourage the behaviour, he or she is likely to continue the behaviour. However, if stopped by the police or caught by parents, the speeder may not continue speeding. This is how positive and negative reinforcement, respectively, work".[18]

Negative reinforcement can therefore act as a barrier to risky behaviour. However, barriers can also sustain risky behaviour. For example, faulty infrastructure or incorrect personal risk perception can be barriers to safe behaviour.

Enabling factors are regarded as skills or abilities, emotional/psychological and physical factors that facilitate the performance of a particular behaviour by individuals. They make it possible for motivation to be realised; they enable people to act on their predispositions. For example, a novice driver may feel very uncomfortable or scared when speeding, and may not perform this behaviour for very long. As the person becomes more experienced with this action, his or her level of fear may reduce, and a feeling of driving skilfulness may occur. Similarly, a car capable of speeding and a road design allowing for speeding are also enabling factors.

The predisposing, reinforcing and enabling factors you identify should be linked to the 'barriers' you identified earlier (behavioural and circumstantial risk factors) and not to the desired result. For example, if you identified the "inappropriate road crossing behaviour" as a barrier to achieving the desired result of "a decrease in pedestrian traffic injury prevalence", a factor that predisposes children to cross the road without taking care of the traffic could be "inadequate knowledge about safe crossing", a reinforcing factor could be "inadequate traffic safety education at school", while an enabling factor could be the "inability of parents to demonstrate safe behaviour while crossing the road".

Specify Target Groups

After the problem area is defined and the needs assessment completed, the information set out in the general strategy will help you define the target groups relevant for your activity, which for the scope of this manual[19] can be divided into three groups:

Primary target group: those that the activity is trying to positively influence. For the purpose of this manual, these are the pupils in schools (e.g. 6-9 year old pupils as pedestrians on rural roads in a given area, cyclists aged 15-17 years, etc).

[18] National Taichung University of Education (n.d.), Health Promotion Planning, Phase 4, Page 1, Educational & Ecological Assessment: "What is the solution?". https://bit.ly/2ZvVCxU

[19] As previously mentioned, the scope of the manual focuses on activities at schools for 6 to 17 year old children and youngsters. The target groups for activities outside of school and for other age groups may look different.

Secondary target group: those who deliver/teach the activity to the primary target group. For the purpose of this manual, these are usually teachers and traffic contact teachers. They may however also be external experts who present the activity to the pupils at school (e.g. an expert from a road safety NGO or a police officer).

Tertiary target group: those who provide support for the implementation of the activity. These could be parents, school administrators, external experts, or third parties, amongst others, who provide support to the secondary target group (e.g. the teacher) in implementing the activity. For example, a parent who helps as an observer during a cycling test.

Examples of relevant factors to include in the description of the different target groups are age, gender, road user role, traffic environment, sociological factors and structural factors.

CHECKLIST STEP 1

- ☐ Create a general strategy for your target age group, or, if already available, update it with the latest information, if necessary
- ☐ Create a specific strategy for your activity
  - O Describe your activity's problem area
  - O Identify the behavioural and circumstantial aspects of the problem
  - O Identify the factors that contribute to the unsafe behaviour
  - O Specify the target groups
  - O Describe the background for the activity (previous activities, relationship to other measures and activities)
  - O Include a reflection on the budget available for the activity
  - O Include an initial reflection on how you envisage to promote the implementation of the activity

2 STEP 2 – FORMULATING OUTCOMES AND OBJECTIVES

2.1 FORMULATING OUTCOMES, OBJECTIVES AND OUTPUT OBJECTIVES

This second step primarily focuses on formulating outcomes and objectives for your educational activity. You should link the activity to your general strategy, and if applicable, to the curriculum in school and national goals set for traffic safety and mobility education. You then have to decide whether the learning outcome is related to actual behaviour or intentions to engage in the behaviour.

For example, safe bicycle use can be related to actual behaviour (which in this case means safe use of a bicycle) or intentions to engage in the behaviour (which can mean "wish to ride a bicycle safely"). You cannot always measure actual behaviour, but it is known from psychology that if you change someone's intentions, you are on the right way towards changing actual behaviour.[20,21] You then have to decide whether the learning outcomes are related to knowledge (about cycling and risks), skills (on the bicycle) or attitudes (towards safe cycling) – or a combination of two, or perhaps even all three. It is important that there is a link or similarity between your objectives and the theoretical model of behaviour that you select in Step 3.

See **examples 4, 5 and 6** for which different objectives and output objectives were set for the Danish "Road Safety LIVE" initiative, the Flemish pedestrian and cyclist tests, and an Austrian workshop on speed. See also **example 7**, where the objectives for a Danish cycling test are included in the activity's theory of change one-pager.

Regardless of whether the focus is on knowledge, skills or attitudes, it will be necessary to formulate the outcomes in terms of operational objectives. Let's say you focus on improved knowledge of traffic rules for cyclists as a learning outcome of your activity. In that case, you should try to define what elements of that knowledge you specifically want to see changed, to what extent and in what timeframe. A useful guiding principle here is known as "SMARTER", whereby the operational objectives should be Specific, Measurable, Achievable, Realistic, Time-bound, Evaluated, and Revisable. The specific objectives, when operationalised in this way, will serve as a road map for designing your activity and its evaluation.

You should also set output objectives for your activity, for example the amount of pupils or percentage of schools that you want to reach within a certain time period (e.g. per year or the duration of the activity).

[20] For more information, see the section on theoretical models of behaviour in Step 3 of this handbook.

[21] For example, pupils may indicate in an evaluation survey that following the activity, they will not use their smartphones anymore when participating in traffic. However, in order to know whether the pupils indeed will behave more safely, you would have to observe their smartphone usage (and hopefully lack thereof) in traffic, which may not always be possible. The expressed intention in this example's evaluation survey would nevertheless already show a step in the right direction.

2.2 A FIRST LOOK AT THE TEST AND EVALUATION DESIGNS

Testing and evaluation should be key parts of any activity related to traffic safety and mobility education. Even though both are addressed in greater detail in subsequent steps of this handbook, it is important to think about plans and designs for testing and evaluating at this point in the process of developing an activity, including how they will fit in the time schedule. Having established the objectives, it is important to consider how they will be measured, tested and evaluated to ensure that the activity is indeed achieving them.

Testing is addressed in greater detail in Step 5, while the different types of evaluation and their uses are described in greater detail in Step 8, together with the reasons for why evaluations are important. Relevant examples set out in Part IV are also highlighted in Steps 5 and 8.

2.3 CONDUCTING THE BASELINE MEASUREMENT

For conducting questionnaires, you can make use of free online survey tools, such as Survey Monkey.

Your evaluation design should include at least one measurement before the activity, the so-called *baseline measurement*. This measurement is necessary in order to establish the situation prior to the activity, which is necessary to determine the effects of the activity afterwards.[22]

In the baseline measurement, you can measure the knowledge, attitudes, skills and/or behaviour of your target group before they receive your educational activity. The specific objectives for the activity that you have formulated in the previous section will tell you what exactly you should measure: if the expected learning outcomes of your activity have to do with knowledge, for example traffic risks for cyclists, you will want to measure how much knowledge your target group has on this topic before participating in your activity. You can measure this by using a questionnaire. Attitudes and self-reported behaviour can be measured by questionnaires as well. If it is skills you are focusing on, you should measure the skills of your target group before they participate in the activity, which can be done by an assessment.[23]

It is also important that the questions asked during the baseline measurement, as well as the tools and methodology used, are the same as those during the evaluation of the activity (see Step 8), and are the same as those in your theory of change one-pager (see Step 3.2). This will allow you to compare the results.

TIMING OF THE BASELINE MEASUREMENT

Conducting the baseline measurement at this stage in your development process allows you to take into account both the specific objectives set for your activity as well as your evaluation design.

It is however also possible to conduct the baseline measurement as part of Step 1, when you are gathering relevant insights into the target group, for example by means of a survey and using those questions as the baseline measurement. Alternatively, you could conduct the baseline measurement while pre-testing in Step 5. Regardless of whether you conduct the baseline measurement as part of Step 1, Step 2, or Step 5, it is important that you conduct it before the target group is exposed to your activity. This is especially important to remember when conducting the baseline measurement as part of pre-testing.

[22] For more information, see the hierarchy of evidence section in Step 8.3.
[23] For example, if you want to measure the pupils' bicycle riding skills, you can assess their current level of bicycle riding skills by observing them in traffic or during a dedicated exercise.

2.4 A GLANCE AT THE COSTS AND BUDGETS

Another aspect that should be taken into account during the development of the activity are the costs. In order to get an idea of what resources you need to fully execute your activity, you need to draft a budget. There are different types of costs you should consider.[24]

First of all, the costs related to the development and production of the specific activity, which include among others the labour and materials used. For example, if your activity uses high-tech devices (such as VR equipment), make sure you also account for the cost of writing off the devices, insurance costs, repair or replacement costs in case of defects, etc.

It is important to note that these activity-related costs should also include the costs of maintaining and updating the activity. The costs of the pre-tests and evaluations of the activity should be included as well, and it is recommended you reserve a part of the budget for this.

Secondly, costs not directly related to the specific activity should also be taken into account. These include the overhead costs of your organisation, such as rent, heating, electricity and taxes, amongst many others.

Thirdly, the costs related to the implementation of the specific activity. It is important to take into account and reserve resources (both human and economic) to launch and market the educational activity to teachers, head teachers, schools, municipalities etc. Resources for this are often not prioritised, which results in the unfortunate situation that a lot of good educational material is not used by the schools, simply because they do not know it exists. The best method for addressing this is to show teachers directly how to use the material.

Making an overview of the costs for your activity is not only important in order to draft the budget, but also to be able to make economic evaluations later (see Step 8).

Funding

Ideally the activity should be provided free-of-charge to schools. This, however, would mean that the activity itself does not generate revenue to support itself, which in turn underlines the importance of finding funders to support the development and implementation of your activity.

Finding appropriate funders differs widely between countries, and depends on what type of organisation you are. It is therefore important to analyse your local situation, discover what the possibilities are, and act accordingly.

If you are working for a government department or agency, or organisation related to a government authority, it may be easier to get funding for your activity through their budget.

If you are working for a private or non-governmental organisation, it might be more difficult. Perhaps you could apply for government subsidies, or find private funders willing to fund your activity, such as charities, foundations and companies.

Alternatively, you may want to consider a partnership with a company, to strategically

[24] This first glance at the costs section has been based on the CAST Manual and been supplemented with additional information important for traffic safety and mobility education activities. More detailed information on the different types of costs can be found in the CAST Manual. Delhomme et al. (2009), Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns (CAST Manual). https://bit.ly/CASTManual

cooperate in order to reach your target group with specific activities. However, in some countries, schools are not allowed to use materials that mention company names or show their logos, so do check this (it may be acceptable to receive funding from a company for the activity as long as the funder is not identified).

When considering sponsorship from third parties, you should retain the integrity of your activity, as a financial partnership should never lead to concessions in the quality of your activity. Moreover, it is important to have a general understanding, commitment and approval among all parties involved in the activity in order to ensure that there are no conflicts or foreseeable barriers with the potential sponsors.

CHECKLIST STEP 2

- ☐ Formulate the outcomes, objectives and output objectives for your activity
- ☐ Make an overview of the costs and draft a budget for your activity
- ☐ Have an initial consideration of the design for your activity's pre-tests and evaluations
- ☐ Conduct the baseline measurement for your activity

FURTHER READING

For more information on **formulating outcomes and objectives,** see pages 27 to 29 of the Norwegian Council for Road Safety's Model for Behaviour Modification.

- Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

For more information on **testing and evaluations.**

- See Step 5 for more information on testing.
  See Step 8 for more information on evaluations.

For more information on **drafting the budget**, see chapter 1.4 of the CAST Manual.

- Delhomme et al. (2009), Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns (CAST Manual). https://bit.ly/CASTManual

03

3 ACHIEVING CHANGE

By now you have decided whether the activity's outcome is related to actual behaviour or intentions to engage in the behaviour, and whether the outcome will be knowledge, skills, attitudes or (intended) behaviour. In this step you should select and apply a theoretical model of behaviour to the problem behaviour that you have identified, in order to define what you seek to modify and how to modify it.

3.1 THEORETICAL MODELS OF BEHAVIOUR

Children and youngsters may engage in unsafe behaviour due to unintended errors, but also due to deliberate choices of inappropriate behaviour. As set out in Step 1, unsafe behaviour may be influenced by a large number of factors, such as their motivations, notions, attitudes, knowledge and skills, along with external influences.

Social psychology has developed a number of theories that explain behaviour and behavioural change in individuals. They provide insight into how different factors that influence human behaviour are related and interact. Theoretical models allow us to understand what factors we need to target when we want to change behaviour. Insight into these factors can help us determine an appropriate focus for educational interventions. It will make it easier to formulate what it is exactly that we want to modify, and how we seek to do this.

See **example 6** on how the information-motivation-behavioural (IMB) model was applied to an Austrian workshop on speed, and **examples 22 and 23** on how the questions of a survey used in a Portuguese project on visibility were based on theoretical models of behaviour.

Models that explain or predict human behaviour include the Theory of Planned Behaviour (TPB)[25], the Health Belief Model (HBM)[26], the Theory of Interpersonal Behaviour (TIB)[27], and the Elaboration Likelihood Model (ELM)[28]. A model that explains the process of change, i.e. the various stages that people go through when they change their behaviour, is the Transtheoretical Model of Change (TTM).[29] The Norwegian Council for Road Safety's model for behaviour modification provides further in-depth discussion of these theories.[30]

It is important to note that there is no such thing as an "overall" behavioural model in scientific literature. Models that are used to change the behaviour of road users have a number of similarities, but also some differences. Each model adds aspects that enhance our understanding of the determinants of human

[25] Ajzen (1991), The theory of planned behavior. Organizational behavior and Human Decision Processes, 50, 179-211. https://bit.ly/3brvd8v
[26] Rosenstock (1974), The health belief model and preventive health behaviour. Health Education Monographs, 2, 354-386. https://bit.ly/33Q3gV7
[27] Triandis (1982), A model of choice in marketing. Research in Marketing (Supplement 1), 147-162
[28] Petty & Cacioppo (1986), The Elaboration Likelihood Model of Persuasion. Advances in Experimental Social Psychology, 19, 123-205. https://bit.ly/2WIJl9g
[29] Prochaska & DiClemente (1983), Stages and processes of self-change of smoking. Toward an integrative model of change. Journal of Consulting and Clinical Psychology, 51, 390-395. https://bit.ly/3aohkYz
[30] Chapter 2 in: Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

behaviour and thus points to approaches to and preconditions for effectively influencing this behaviour.

Based on the key aspects of these models, the Norwegian Road Safety Council has developed a new, comprehensive model of behaviour modification that is suited to design educational activities, and which you could select to apply to your activity. Further information about this model and the underlying theories, including practical examples of how to use it, can be found in the Norwegian Council for Road Safety's model for behaviour modification.[31]

3.2 A TEMPLATE FOR YOUR THEORY OF CHANGE

Based on all the preceding steps, you should make your theory of change: a one-pager that summarises all the key information on how you expect your activity will bring about the desired change. Being a one-pager, your theory of change would not only be useful to communicate your activity internally within your own organisation, but also towards stakeholders, such as for example funders.

Your theory of change one-pager should summarise the following:

- What is the problem you want to address? (Problem analysis)
- Who do you want to target? (Target group)
- What do you want to achieve in the long term? (Strategy level, for instance fewer of the target group killed or injured in traffic)
- What do you want to achieve immediately? (Outcome objectives, for example based on knowledge, skills, attitudes and/or behaviour)
- What activities are needed to bring about the desired change/outcomes? (List of activities you and perhaps other stakeholders could undertake, for example also through legislation, infrastructure, and/or enforcement, etc)
- How do you want to bring about that change? (Application of theoretical models of behaviour to your envisaged activity; check in this regard that you can reasonably expect to achieve the desired outcomes with the envisaged activity)
- What are the inputs? (Human and economic resources available for your activity)
- What are the outputs? (Output objectives, for example the number of pupils, classes or schools reached per activity or per year)

The key objectives you decided on and have included in your theory of change one-pager should be marked with an asterisk, in order to allow you to know what your key performance indicators (KPIs) are. While you may expect that your activity could result in more change than you can actually measure, these KPIs are the only things you should measure in the evaluations.

[31] Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

THEORY OF CHANGE: "ROAD SAFETY LIVE" (* = key performance indicators)

RES	TARGET GROUPS	ACTIVITIES	OUTCOMES/RESULTS/EFFECTS		IN THE LONG TERM
X WORK HOURS X DANISH KRONEN	**GRADES 8-10** (13 to 16 year old pupils)	**SCHOOL VISIT BY LIVE AMBASSADOR** • Injured person/ LIVE ambassador tells his/her story to the pupils (90-120 min.) • Teacher's guide and preparation sheets for pupils **OUTPUT** **AT LEAST 25,000 PUPILS FROM GRADES 8-10** (Including visits for at least 30% of the pupils in Grades 8 to 10 in the country's 5 most collision-affected municipalities in the school year, corresponding to a total of approx. 1700 pupils)	**KNOWLEDGE - PUPILS** • Knowledge of at least 2 collision/injury factors (speed, alcohol, seat belt, inattention) • Knowledge of collision/injury factors for young people (incl. mopeds) **KNOWLEDGE - PUPILS** • Knows that they themselves are part of the most vulnerable age group in traffic* • Knowledge/understanding of the consequences of their own and others' behaviour in traffic • Knowledge of how to say no to others (action instructions) **RELEVANCE - PUPILS** • Can relate the story to their own life **REFLECTION - PUPILS** • Reflect on what could have prevented the collision the injured person was in • Reflect on own abilities and behaviour in traffic • Decide on own future behaviour in traffic • ATTITUDE - PUPILS • Thinks the visit was good / very good * • Drink driving is unacceptable • Not always wearing a seat belt/helmet is unacceptable • Being inattentive/ distracted in traffic is unacceptable • Speeding is unacceptable	**INTENDED BEHAVIOUR - PUPILS** • Will talk to friends/family about the visit **INTENDED BEHAVIOUR - PUPILS** • Decides how they will react to others' risk behaviour **BEHAVIOUR - PUPILS** **Less risky driving:** • Reduces their speed/adheres to the speed limit • Does not drive under the influence of alcohol or drugs • Uses the seat belt • Pays attention in traffic • Wears a helmet (moped and motorcycle) **6 to 12 months after the visit:** • Believes that the LIVE visit has helped them to take better care of themselves in traffic *	**REDUCE THE NUMBER OF TRAFFIC COLLISIONS** **FEWER ROAD DEATHS** (number and loss of living years) **FEWER INJURED** (lightly and seriously)

Figure 2. The figure shows an example of the theory of change one-pager used by the Danish Road Safety Council for their "Road Safety LIVE" initative. A large version of this figure is included as example 8.

See **examples 7 and 8** for the theory of change one-pagers prepared for the new Danish cycling test and the "Road Safety LIVE" initiative.

CHECKLIST STEP 3

- ☐ Select and apply a theoretical model of behaviour to your activity
- ☐ Prepare your theory of change one-pager

FURTHER READING

The Norwegian Council for Road Safety's Model for Behaviour Modification sets out a comprehensive model of behaviour modification. The publication also contains an **in-depth discussion of the different theoretical models of behaviour** mentioned in this step.

Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

04 4 DESIGN

Following the previous steps, you have by now established the objectives as well as formulated, based on the insights, what exactly you want to modify and how you seek to do this. It is now time to design the activity and its material accordingly, in terms of content and, depending on your approach, its visual appearance as well. In this step, you should also finalise your evaluation plan.

4.1 DESIGNING YOUR ACTIVITY

While designing the activity, keep in mind that it is best when the activity:

- is offered free-of-charge to schools
- is offered ready for use digitally and/or as printed copies, if applicable
- takes into account important factors and good educational practices associated with effective learning[32]
- takes into account the 5E model (make sure that the activity covers all the five Es, and that the best possible provisions are made for the teachers to follow this model)
- is attractive to the target group (both pupils and teachers)
- is consistent with national educational goals for traffic safety and mobility education
- is an activity considered likely to be the most effective or suitable approach to achieving the established objectives
- is accompanied by a teacher's guide, if the activity is to be given by teachers
- is integrated into or part of a continuous learning process, and
- aligns with the LEARN! Key Principles, notably those principles on ensuring high quality education.

By offering the activity free-of-charge, you ensure that not only schools with large budgets can use the material.

Before starting to design the activity, also have a look at the tips given in Step 6 on production. Depending on the way you design the activity, and depending on the involvement of third parties in this process, several tips may already apply during this step.

See **examples 1 and 9** on applying the 5E model to your activity's design.

[32] There are many different approaches and it would go beyond the scope of this handbook to set them out here. We therefore highly recommend you to read up on them in dedicated literature on the topic, and have provided some starting points in the further reading section at the end of this step.

CROW CHECKLIST

The Dutch knowledge institute CROW has developed a traffic education checklist that assesses certain elements of traffic education activities in 10 steps. These steps assess the problem analysis, target group specification, educational goals, didactical principles, content of the material, assessment and evaluation during the activity, the manual, the implementation, the process, and outcome evaluations of the activity.

Keeping this checklist in mind while developing your activity – and in fact during all steps outlined by this manual – will help assure that you are going in the right direction to deliver a qualitatively sound activity.[33]

Digital-only or printed copies?

Depending on your country, it may be important to offer printed copies of your activities, in addition to offering them to schools in digital form.[34]

Several members of the LEARN! Expert Panel from different countries have found that digital-only material has been used less than materials offered both digitally and in printed form, particularly at primary schools. Schools and teachers prefer the most convenient form, which in many cases remains the ready-to-use printed material as they do not have to start printing everything themselves. Digital-only or printable material may also be an obstacle for some teachers, as they may lack the appropriate digital facilities at school or lack the budget to print the copies they need.

Keep in mind, however, that sending numerous printed copies is probably going to be expensive, and schools may not use them at all – which is also undesirable from an environmental perspective. One way to avoid this would be to only send out printed copies if and when requested by the teachers.

Having said that, other members of the LEARN! Expert Panel are increasingly offering their resources digital-only.

Which method of delivery is best therefore depends on the activity itself, local preferences and your budget.

Expansive themes

Schools could be reluctant to deliver a specific programme on traffic safety and mobility education, but may be more willing if such material was presented in the context of another theme.

See **example 10** setting out how expansive themes are used in several European countries.

For example, you could couple traffic safety and mobility education with themes such as health. Going to school on foot or by bicycle, rather than by car, has health benefits in addition to safety benefits. You could cooperate with partners that work on the topic of health in order to introduce traffic safety and mobility aspects.

[33] CROW (2014), Checklist Road Safety Education. http://bit.ly/349N4Nf

[34] This section may not necessarily apply to activities that do not require printed materials, such as activities on physical activities and artistic activities (as songs).

Thematic traffic safety and mobility education could also be implemented in the wider context of health, environment and social (group behaviour) education. It could also be used as a catalyst to talk about topics such as safety, respect and peer pressure. By combining it with other topics, your activity will have a stronger basis.

In addition to expansive themes, also consider teaching traffic safety and mobility education through other subjects at school, such as for example maths, language, geography and physics. See LEARN! Key Principle #14 on interdisciplinary material.[34]

4.2 FINALISE YOUR EVALUATION PLAN

You should now finalise your detailed evaluation plan, taking into account your initial considerations for the evaluation (see Step 2.2) and the design of your activity. More information on evaluation designs and methods is set out in detail in Step 8.

You should also start planning for the production of your activity's material (see Step 6) and for the implementation of your activity (see Step 7).

However, keep in mind that, depending on the results of pre-testing your activity (in the next step), you may need to revisit earlier steps, which in turn may impact your evaluation design, production plans and/or implementation plans.

CHECKLIST STEP 4

- ☐ Design your activity
- ☐ Finalise your evaluation plan
- ☐ Plan for production and implementation

[35] ETSC (2020), Key Principles for Traffic Safety and Mobility Education. http://bit.ly/LearnKeyPrinciples

FURTHER READING

For more information on the **5E model,** see the dedicated section in 'Before You Start' at the start of the handbook.

The Educational Practices series by the UNESCO International Bureau of Education (IBE) is a series of booklets describing in simple language some **universally applicable principles for good educational practices** identified by research.

- UNESCO International Bureau of Education (n.d.) Educational Practices. https://bit.ly/3qlvv34 Most notably the following entries in the series:

  Teaching (Educational Practices 1) - https://bit.ly/3n5gRAS

  Effective educational practices (Educational Practices 3) - https://bit.ly/3qloUFZ

  How children learn (Educational Practices 7) - https://bit.ly/2VWDHie

  Principles of instruction (Educational Practices 21) - https://bit.ly/3a5yYTo

More information on **pedagogical models** in traffic safety education, including the **Didactic Relations Model,** is set out from page 25 of the Norwegian Council for Road Safety's model for behaviour modification.

- Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

The CROW **checklist for road safety education** sets out 10 steps that will help you assess whether you are going in the right direction to deliver a qualitatively sound activity.

- CROW (2014), Checklist Road Safety Education. http://bit.ly/349N4Nf

5 PRE-TESTING

5.1 TEST THE ACTIVITY

Once the activity has been designed, it is important to test it prior to its implementation, to see whether it is indeed performing as envisaged. Pre-testing allows you to find out, amongst other things, whether the activity is having the desired effects, whether it is appealing to the target audience, and whether it can be used as intended. It is therefore important that the activity is pre-tested with the activity's target group, or a group with similar characteristics.

It is important to underline that not only should the activity itself be tested, but also the teacher's guide that describes how teachers should implement the activity, use the materials, and teach the children. Testing the teacher's guide will show you whether its descriptions and guidance lead to a good implementation of the activity.

Based on the results and feedback received from the pre-tests, you should make changes to the activity as needed. On the one hand, this may mean changes to the content and form of the activity itself. On the other hand, you may need to review the objectives set in Step 2, as the pre-test might show the need to add extra objectives or to revise and/or delete established objectives. Subsequently, you may also have to revise your theory of change one-pager from Step 3.2 and your evaluation design from Step 4.2, as well as possibly conduct a new baseline measurement.

If the results show that the activity is not performing as intended and will not achieve the objectives or outcomes, you may need to start all over again – and it is important that you do, even if it means that you have to 'kill your darling'.

It is important to note that the pre-tests, as well as the evaluations, should preferably not be conducted by the persons that are developing the activity. If you have developed the activity, it is acceptable to be involved in the pre-tests, but you should not be the person responsible for pre-testing your own work, as you will be biased – regardless of how hard you try not to be. To overcome this bias, it is better if people who are not involved in the development conduct the pre-tests. If for any reason the only option for pre-testing is to pre-test your own work, it is still better to do the pre-test yourself than to have no pre-test at all, as long as you remain aware that you have an interest in a positive assessment.

> When you are going to develop an activity that is new for you (e.g. a completely new format) or when you use a new approach, make sure to reserve some room for an extra test in the time schedule you create as part of your project plan.

There is no 'one size fits all' solution when it comes to pre-testing, as this depends on the activity's design and the resources available to you. It is therefore important to develop a specific pre-test design for your activity.

Section 5.3 sets out different pre-test designs. It aims to demonstrate that even if you do not have the funds for focus groups conducted by a specialised third party, there are easier, simpler, and less expensive pre-test designs that you can apply. It is important in this regard to underline again that it is always better to do some pre-testing than nothing at all.

Example 11 sets out aspects that you should consider when developing your test design.

Examples 12, 13, 14, and 15 all show the pre-test designs and considerations for several activities across Europe, covering among other things updating a cycling test, using focus groups, testing digital learning environments, and testing under time pressure.

Pre-Testing the evaluation design

When pre-testing your activity, you could also consider pre-testing your evaluation design. Doing this will provide you with useful information, but whether pre-testing your evaluation design is feasible will depend mainly on the scale and resources of your activity.

The advantage of pre-testing your evaluation design while pre-testing the activity is that you would, in effect, be conducting a pilot of your activity, in which you roll out your complete activity – including the evaluation – on a small scale. This can be useful, and perhaps even desirable, if you are planning to roll out your activity on a national scale. You could start the pilot in one city or region and evaluate it. This evaluation should also include an assessment of the evaluation method itself (e.g. are the questionnaires used for the evaluation complete? Are they sufficiently understood by the target group? etc). The results of this evaluation will allow you to make changes to the activity as well as the evaluation design, if necessary, before the nationwide rollout.

Smaller scale activities are unlikely to have the resources necessary to conduct such a pilot. In such circumstances, you could assess the evaluation design when evaluating the activity or when it appears that improvements could be possible.

5.2 MOCK-UP PRODUCTION

In order to test the activity, you have to produce 'mock-up' versions (prototypes) of the material. Although it is important that these mock-ups represent the final material, prototype versions do not need to have the production value or quantities of the final product. The mock-up version should be of sufficient quality to enable people to understand the concept and allow for a proper and meaningful assessment, but without incurring too much by way of cost. This allows you to make changes to the activity and its material swiftly and cost-effectively during the pre-testing phase of the development process.

It is important to not only make mock-ups of the activity's material itself, but also of the teacher's guide for the activity.

5.3 METHODS FOR PRE-TESTING

Which methods you can use for pre-testing depend on whether you are pre-testing new teaching material or teacher's guides.

Focus groups

A method that can be used to test both new teaching material (mock-ups) as well as teacher's guides consists of pre-tests with several focus groups. Ideally these focus groups are conducted by a third party specialist (for example a consultancy or research institute), and it would also be advantageous if the third party has knowledge and experience of how to test teaching material.

COLLABORATION WITH UNIVERSITIES

Another alternative would be to collaborate with a university, as they may be able to perform the focus group-based pre-tests (and later evaluations) much more cheaply or even for free, for example as a (dissertation) project for one of their students. Keep in mind however that this might mean that you have to adjust your schedule to theirs, or that you have to adjust certain aspects of your activity (e.g. problem area, design) to their research needs.

A focus group brings together roughly ten persons from the activity's target group, and presents and tests the activity with them. If for example your activity is a workshop, then the focus group will conduct a trial run of the workshop itself. The goal for testing with focus groups, and indeed for all methods of pre-testing, is to collect as much information as possible during and after the test. Is the activity and its material understandable and attractive? Should things be changed?

However, the ideal method for using focus groups can be costly, as it involves contracting a specialist third party, and these are usually relatively expensive. An alternative would be for your organisation to organise the pre-testing with focus groups itself. Be aware in this case of possible risks of bias (e.g. selection bias, previous experiences that may influence their opinions) and find strategies to minimise them.

Also be aware that focus groups (which can span one to two hours) might take too long for children under the age of 15, and it may therefore be better to use the testing design described in the next section on testing teaching material (mock-ups) for the activity.

In addition, pre-testing with focus groups is an extensive and time-intensive exercise.

Testing teaching material (mock-ups) for the activity

For testing teaching material (mock-ups) of the activity, your organisation can also conduct test runs, either directly in schools or by gathering a certain number of persons from your target group. This will allow you to observe the (teacher) teaching with the mock-ups, to survey the pupils who receive the activity as well as the teacher who uses it (e.g. via a questionnaire), and to conduct interviews with a sample of the pupils (e.g. 5 to 8 pupils) as well as the teacher.

Keep in mind, however, that if your organisation conducts the pre-test of the activity that you developed, it would be better if someone else in your organisation (not involved in the design process) conducts the pre-tests, in order to prevent the results from being biased. If none of the above are options, then it would still be better to conduct pre-tests of your own activity yourself than to not pre-test at all.

As focus groups and the method described above complement each other, you could also consider doing both.

Teacher's guides

Not only the teaching material, but also the teacher's guides should be pre-tested, and you can do this via different methods as well. The ideal method would be to use focus groups. Prior to the focus group meeting, you can send the teacher's guide to the participants, in order to give them enough time to read it. You can accompany it with a questionnaire that they can fill in while they are reading the teacher's guide. The focus group meeting would then concentrate on specific questions for the different pages of the teacher's guide.

An alternative method would be to send the teacher's guide to a number of teachers, accompanied by a questionnaire with the request to fill it in and send it back. Additionally, you can ask the teachers to try the activity using the teacher's guide and provide the activity to the pupils, and subsequently fill in the questionnaire.

5.4 COMPLYING WITH DATA PROTECTION RULES

In the European Union these data protection rules are set out in the General Data Protection Regulation (GDPR) as well as national legislation.

When you collect feedback from pupils, teachers or others during pre-testing (as well as the baseline and evaluation measurements), for example via interviews or surveys, keep in mind that you are required to comply with rules on data protection.

For example, depending on your national data protection rules, you may need to get parental consent before you are allowed to survey children. It then depends on your national rules up to what age this parental consent is required, as this varies between up to 13 and 16 years of age.

Also make sure you have a structure in place to handle the personal data once you obtain them, such as ensuring that the stored personal data are encrypted, and that they are deleted at the appropriate time.

In order to find out which data protection rules you need to comply with, you should consult your national or regional data protection legislation. If unsure about any aspects of the rules on data protection, contact your national data protection authority.[36]

Example 26 sets out the surveys the Danish Road Safety Council uses for the evaluation of its "Road Safety LIVE" initiative, which gives insights into how they applied their national data protection rules.

[36] See the further reading section for a link to a list of the national data protection authorities in the Member States of the European Union.

The following are data-protection-related aspects that you should consider while preparing your activity. This is merely a starting point of things to consider based on the experiences of the LEARN! Expert Panel and by no means represents an exhaustive list of all aspects you should consider.

- What is considered personal data?
  This not only includes name, phone number and age, but also health status, etc.
- What information should you provide to the participant when conducting the survey?
  You are probably required to inform the participants what the data will be used for, how and how long they will be stored, whom the data will (or will not) be shared with, etc. You may also be required to have a detailed data protection policy for your activity.
- How do you acquire consent, and up to what age is parental consent required?
  Also keep in mind that the participants are likely to have the right to withdraw their consent.
- What should you consider when you have acquired personal data?
  You are likely required to have set out the technical and organisational measures that will be implemented to safeguard the rights and freedoms of the participant.
- What should you consider when storing the personal data?
  You are likely to be required to encrypt the personal data when you store them, and implement security measures to prevent unauthorised access to them. Moreover, you would have to delete the personal data at the appropriate time.
- What should you consider if you need to share the personal data with third parties?
- Besides surveys, what other aspects may require consent?
  For example, you are required to acquire consent from the participants (or their parents) before you take photos or videos during the baseline and evaluation measurements, the pre-testing, and the implementation of the activity.

CHECKLIST STEP 5

- ☐ Develop a pre-test design specific to your activity
- ☐ Make mock-ups of your activity's material
- ☐ Perform pre-tests
- ☐ Depending on the results of the pre-test, adjust the activity's objectives and design based on the results of pre-testing, if needed, or start all over again.

FURTHER READING

A list of the **national data protection authorities** in the Member States of the European Union can be found on the website of the European Data Protection Board. The websites of the national data protection authorities often provide further **information on the application of data protection rules** in their respective countries.

European Data Protection Board (n.d.), Members. http://bit.ly/3dSd87V

6 PRODUCTION

Once the pre-testing phase is completed and the activity has been tested satisfactorily, the final version of the material can be produced. Several aspects should be taken into account when the final material is produced, and may already need to be taken into account earlier in the design step, depending on when certain actors are involved in the process.

Firstly, ensure that the final product meets the preferences and needs of the end user – in the case of educational activities usually the teacher. Therefore, consider whether a web-only, a printed copy, or both versions are required. You could even include a question on this in the pre-test, so that you will already know the teachers' preferences prior to production. With regard to printed copies, it is also important to consider sustainability, both environmentally and financially, as printed copies may need to be replaced, for example as the result of a legislative change or an update to the material.

Secondly, choose software that allows for easy updates, as educational material has to be regularly updated. These updates are very often just small details, but sometimes more extensive changes need to be made.

Thirdly, if the production is done by a third party, ensure that you also receive the source files, in addition to the final product. This ensures that you are not affected if there are changes or damages at the third party or if the third party ceases to exist. In addition, depending on the contract with the third party, this would also allow you to change providers if you wish to.

Fourthly, if third parties are involved in the design step, you need to ensure that you are the owner of the copyrights.

CHECKLIST STEP 6

- ☐ Produce the material for the activity

7 IMPLEMENTATION

7.1 PROMOTING THE IMPLEMENTATION AND USE OF THE ACTIVITY

Promoting the implementation and use of activities is a challenging task and requires both bottom-up and top-down approaches in your implementation plan and communications strategy.

Bottom-up and top-down approach

Example 16 sets out different bottom-up and top-down approaches used throughout Europe, whereas **example 17** discusses the pros and cons of top-down approaches for implementing *heart zones*.

The 'bottom-up' approach means that you have to directly engage with those you envisage will implement your activity, which for the scope of this manual are teachers and schools. As they are your target group, it is essential that you reach out to them directly to inform them about your activity.

The 'top-down' approach involves you approaching those actors that have the authority or power to implement your activity at schools, such as ministries, agencies, municipalities, etc. Depending on your country, it may actually be crucial to involve those actors right from the start, as it could be that the implementation in schools will only be possible with their support and commitment. In addition, the activity may be more accepted by teachers and head teachers with their involvement.

Implementation Plan

You describe how you envisage turning your ideas into reality in your implementation plan. Its outline, and the emphasis on certain aspects within it, will depend on various factors, such as the type of activity, the material, and the target age group. As a minimum, the following questions should be answered in your implementation plan:

- How will the activity be rolled out?
- What will be the best/right moment to launch the activity?
- Where should the activity be implemented?
- Who are good ambassadors, and who are good partners to cooperate with?
- Can any resistance be expected? If yes, from where and how will you handle it?
- What are the most important channels?
- What resources have been allocated for the implementation?
- How do you assure the sustainability of the project? (e.g. updates, continuous quality for example of guest teachers)
- How will you monitor the use of the activity?

The last three points should already be part of your strategy for the activity. Your communications strategy for the activity should also be part of your implementation plan.

A dedicated communications strategy

Each activity should have its own dedicated communications plan. Your communications strategy and approach should be adjusted to the country where you want to implement it, as different countries may require different approaches.

Example 18 shows how the "Life on the Road" project in Portugal was promoted when it launched, using a mix of top-down and bottom-up approaches.

To reach as many potential users as possible, you should consider direct communication and perhaps even press releases.

With regard to *direct communication*, it is essential to spread information about your activity within schools and the teaching community. You can use different channels (for different goals), such as newsletters from the ministry and local school administrations, written announcements, emails and newsletters to every school, and, depending on your resources and activity, reaching out directly to schools by phone or in person. You could also identify the communication channels used by the activity's target group and use those for dissemination.

In addition to being free of charge, the activities and teaching material should be easy to access. A well-structured and up-to-date website is helpful for providing the materials for the activities, allowing teachers and others to order printed copies or download documentation. If your activity includes a workshop, you could arrange the booking procedure via the website as well. (Make sure to plan workshops and seminars well in advance.)

It would also be beneficial if teachers can get activities that have been tested and evaluated from one centralised website, so they do not have to spend time searching on the internet. It may also be beneficial to upload the activity to the major digital learning platforms in your country if teachers are known to look there for material.

In addition, you should directly communicate to the actors identified in your top-down strategy, to inform them of the existence of your activity.

Relevant actors, such as ministries, municipalities, police, insurance companies, research institutes, as well as teachers and parents' associations, may provide you with an extensive network, which could be helpful for spreading relevant information across a broader community with few resources.

Press releases on the other hand allow you to disseminate your activity more visibly, and could be considered depending on your national context as well as the nature, scale and innovative value of the activity. A first announcement in relevant media channels is recommended, and as soon as activities and materials are updated, further press releases should be issued. The creation of a trademark may also generate recognised value.

Teacher education

One important approach for implementing activities is basic and advanced education for teachers.[37] You should therefore aim to get a slot in their curriculum, as this creates the possibility to present and explain the activity and its educational approach to teachers in more detail. Further direct feedback from the potential user group could also be gained during those presentations. This similarly applies to courses for traffic contact teachers.[38]

[37] All student teachers should gain knowledge about traffic safety and mobility education during their training. For more information, see LEARN! Key Principle #15. http://bit.ly/LearnKeyPrinciples

[38] For more information on traffic contact teachers, see LEARN! Key Principle #7. http://bit.ly/LearnKeyPrinciples

7.2 COOPERATION WITH OTHER ACTORS

Traffic safety and mobility education for the target group of children and youngsters up to the age of 17 involves a wide range of relevant actors: from teachers and school managements to governments, from civil society organisations to parents, from producers of educational material to the police.

This section provides more in-depth information on the cooperation with teachers and head teachers, parents, the police, and governments, as well as several additional actors and structures.

Illustrative examples of such cooperation from across Europe are provided in **examples 19 and 20.**

Keep in mind that your general cooperation with these partners should be included as part of your general strategy (see Step 1). This general cooperation can in turn facilitate your cooperation for the specific activity.

Cooperation with actors not mentioned in these guidelines, such as organisations specialising in the evaluation of educational materials, is also possible but will not be addressed in this handbook.

Teachers and head teachers

The implementation of traffic safety and mobility education at schools is effective when the activity is executed as intended and when it has the desired effects on the children's behaviour. This in turn all depends on the quality of the activity as well as the quality of the execution. The teacher is one of the most important, if not the single most important, actor in the implementation process, as it ultimately depends on the teacher whether or not the desired outcomes are achieved.

Short-term activities at schools by external actors have – in the long term – little chance of succeeding if there is no viable basis at the school. Actors within their own school should therefore feel responsible and motivated for traffic safety and mobility education. This underlines the importance for schools to have a traffic safety policy which sets out what traffic safety and mobility education is taught at the school each year for the different educational levels, and to have a traffic contact teacher.[39]

Practice has shown that, while in most countries traffic safety and mobility education is included in the learning goals for pupils at elementary schools, this does not necessarily mean that an educational programme is implemented. A lack of experience or training with the subject as well as a lack of confidence that teachers have in their own abilities to execute the tasks well (notably with regard to practical lessons) or the priority given to other subjects, result in the situation in which the activity is not always executed. This is even more common in secondary education.

[39] For more information, see LEARN! Key Principles #6 and #7. http://bit.ly/LearnKeyPrinciples

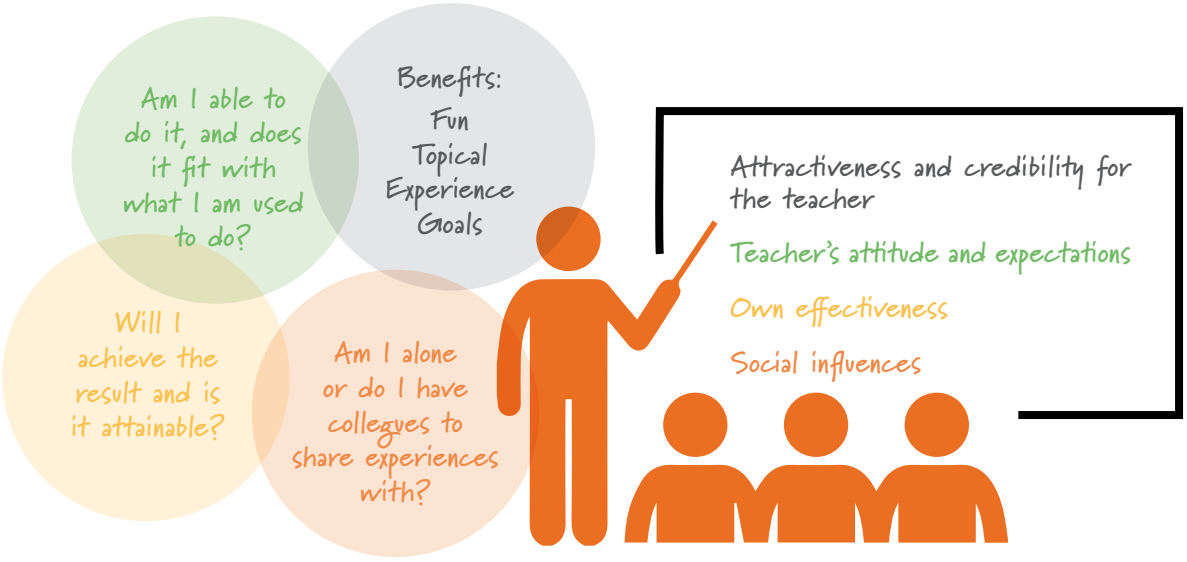


Figure 3. The schoolboard in the figure visualises factors that influence whether the teacher will be able to successfully give traffic safety and mobility education lessons. The bubble in the corresponding colour sets out examples of the factor.[40]

It is therefore important to help, support and cooperate with teachers, in order to improve the chances that traffic safety and mobility education activities are implemented as well as possible.

In addition to this support, it is also important that you inform head teachers and traffic contact teachers about:

- What they are by law required to teach, as well as that their country has signed the Vienna Convention on Road Traffic (assuming it has) and therefore committed to teaching traffic safety and mobility education at all levels in school;
- What (new) traffic safety and mobility educational activities are available and what they include;
- How they can live up to the national goals set for traffic safety and mobility education;
- Ideas on how to link traffic and mobility education to other subjects;
- Who is responsible for following up that the pupils are taught; and
- Why it is important that traffic safety and mobility education is given at all levels in school (and not only to the younger pupils).

Informing them about these points is not a one-time job but a continuous task that involves informing and reminding them via different communication methods, such as letters and newsletters.

Supporting and educating teachers can be done in various ways, and is set out in more detail in the following sections. Keep these supporting measures in mind when developing and/or implementing your activity, as they may be a good way to promote your activity while supporting the teachers at the same time.

[40] Translated from: Nägele and Doff (2009), Implementatie van verkeers- en gezondheidseducatie in het voortgezet onderwijs. [Implementation of traffic and health education in secondary education.] https://bit.ly/3mStsrY

Teacher training

Although organised differently throughout Europe, it is possible for future teachers to be trained, during their basic teacher training, to give lessons in traffic safety and mobility education. More information on this can be found in the LEARN! Key Principles report in Principle #15.[41]

Teacher workshops

Workshops for teachers on how to deliver traffic safety and mobility education are provided across Europe. More information on this can be found in the LEARN! Key Principles report in Principle #8.[42]

Schooling on the job

It is possible for teachers in several countries to receive (additional) training while on the job. In addition, traffic contact teachers (teachers specifically trained in traffic safety and mobility education) could, for a given amount of hours during a certain period, support other teachers in giving practical lessons. The support should be gradually reduced as the teacher becomes able to provide the lessons on their own.

Other ways

There are also other ways in which teachers can be reached, even in large numbers at conferences for example. This allows for information to be provided in an informal way.

COVID-19 has shown that online webinars are a very cost-effective way of reaching many teachers (and other relevant target groups) and informing them about various subjects, including traffic safety and mobility education.[43]

Parents

Parents have an important role in guiding and educating their children with regard to traffic, and acting as an important role model. Parents also make strategic choices about the mode of transport that their children use. For example, children learn much more when travelling on foot or by bicycle than by car, and it also prepares them better for when they need to travel longer distances to the schools they attend during their teenage years.

Including parents in your traffic safety and mobility educational activity can be done in several ways.

Parents helping at school

A lot of schools need help with lessons and other issues, and frequently request help from parents. Primary schools in particular generally provide theoretical lessons on traffic safety and mobility education, ideally complemented by practical lessons. Parents can play a key role by providing assistance during these lessons, for example as controllers during cycling

[41] Principle #15 'Teach future teachers about traffic safety and mobility education during their training.' LEARN! Key Principles report. http://bit.ly/LearnKeyPrinciples
[42] Principle #8 'Strengthen teachers' competence and support them.' LEARN! Key Principles report. http://bit.ly/LearnKeyPrinciples
[43] For more information on how the members of the LEARN! Expert Panel adapted to the restrictions imposed due to COVID-19, which include the use of digital material and the organisation of webinars, can be found in the first LEARN! Flash. ETSC (2021), LEARN! Flash 1: The Impact of COVID-19 on Traffic Safety and Mobility Education. http://bit.ly/LEARNFlash1

tests. They can thereby be involved in traffic safety and mobility education at school as well as in stimulating traffic safety in a broader sense.

Traffic parents

Another possibility is to involve and cooperate with 'traffic parents'. These traffic parents are contact persons at schools who act as the link between the school, parents, municipality, the police and other organisations.

In addition to helping enhance the safety around the school, for example by pointing out unsafe situations in the school's environment and contributing to enhancing the safety of the routes from home to school, traffic parents can assist with organising traffic safety activities for pupils, and help organise the practical assessments, such as the cycling tests. In addition, they are the school's contact for providing information for newsletters on the subject of safe behaviour awareness, and can participate in meetings with the municipality.

Synergies with activities at school

From the perspective of formal education, it is important to make the link with what parents can do themselves at home (informal education). The educational benefits will be greater if a parent continues what has been taught at school. It is less effective when the parent does not continue the education at home, and it is counterproductive if the parents set conflicting or bad examples with what has been taught at school.

Police

The police are an important partner as they have extensive knowledge about the neighbourhood and possible solutions to improve safety. However, they often only enter the picture when additional issues, such as changes to physical infrastructure or influencing other behavioural aspects, cannot be implemented in the short term or when they do not work.

Their role can include enforcement activities around the school, in which the police themselves conduct the enforcement or monitor the environment. Providing assistance during the practical traffic tests can also be a task, either during the tests themselves or when routes and locations are established.

In addition, the police are a partner during certain awareness-raising campaigns.

Different governmental levels

Municipalities, provinces and regions also have a role to play in (stimulating) traffic safety and mobility education. Apart from ensuring a safe infrastructure and safe routes between home and school, local government institutions also play a vital role through subsidies for activities and programmes supporting teachers, as well as by providing information and implementing awareness-raising campaigns about new traffic situations, new traffic rules, drink driving, proper bicycle lighting, etc. A municipality can also choose to cooperate with neighbourhoods to implement activities revolving around the safety in their own neighbourhoods or by organising a 'traffic safety week' for schools with several different activities.

Municipalities also have an influence on stimulating walking and cycling to schools, for example by taking into account that schools are located in places allowing for safe school-to-home routes, facilitating cycle storage, ensuring cars are parked at appropriate distances away from schools or facilitating 'park and ride' schemes, and implementing 'school streets'.

Although these are not educational measures, they are prerequisites for facilitating safe walking and cycling, which in turn allow lessons on these active modes of transport to be more effective at schools.

Source: VSV

A "school street" is a street where motorised traffic is restricted at the times when the school day begins and ends. It is indicated with a special road sign, and specific rules apply to drivers and riders – both motorised and non-motorised – in the street.

When practical cycling tests are organised at elementary schools, the municipality usually has a coordinating role as well as the authority to grant the applicable permits.

This should all be included in the municipality's traffic safety policy (see the separate box on the next page). Having a traffic safety coordinator in the municipality as a contact person for all involved parties is ideal and can stimulate certain activities. It is also advisable to develop contacts in the municipality's schools department and other relevant departments, and to encourage them to cooperate and coordinate.

TRAFFIC EDUCATION IN LOCAL ROAD SAFETY STRATEGIES

Traffic education is an integral and important part of local road safety strategies. The measures included in this area are closely linked to the measures contained in the national road safety strategy and in the relevant regional road safety strategies. It is very important that they are targeted at specific local road safety problems that directly affect the residents in the particular municipality. The local road safety strategies also build on, reinforce and further develop, existing voluntary local traffic education activities, as well as stimulate the development of further educational activities by other actors that are part of the local community.

Other partners and structures

Civil society and interest groups are often closely involved in road safety. Classic examples include NGOs campaigning on road safety as well as automobile clubs that have their own educational programmes. You may want to consider cooperating with them for the development or implementation of educational activities, as they may provide you with resources or an extensive network, experience and support with specific tasks (e.g. the development, promotion and organisation of educational activities, finding financial resources, etc). Such cooperation would also put less pressure on schools, as they would be presented with a ready-made programme for road safety.

There are also other organisations, beside these 'classic' organisations, that can be considered and which may support your activity, and road safety in general, from a different perspective. These include:

- Transport organisations, which can be involved in teaching children about the blind spots of trucks;
- Agricultural organisations, which can be involved in lessons dedicated to dealing with agricultural traffic;
- Insurance companies and the automotive industry;
- Sports clubs and youth organisations;
- Nightlife establishments/organisations, which can be involved in campaigns revolving around drink/drug driving activities aimed at 15-17 year olds;
- Businesses that are committed to working on a safety culture, for example companies that work with 15-17 year olds as delivery drivers;
- Traffic playgrounds that are privately owned.

Make sure, however, that you and the other organisation(s) have the same interests and goals, so that you are not unintentionally supporting something you do not want to.

CHECKLIST STEP 7

- ☐ Create an implementation plan and a dedicated communications strategy, including top-down and bottom-up approaches and focusing on direct communication and, where relevant, press releases
- ☐ Execute your implementation plan and communications strategy

8 EVALUATION

Although touching on quality assurance and reporting, this last step focuses primarily on the evaluation of the activity. This section first sets out why your activity should be evaluated and subsequently sets out the different types of evaluation in more detail.

It is important to underline once again that the evaluation process should be an integral part of your activity's design (see Steps 2 and 4). You should not start thinking about evaluation only after you have implemented your activity.

Most importantly, *do not be afraid of bad results!* If, contrary to your high hopes and expectations, it turns out that the evaluation shows no effects at all – or even worse, negative effects – this is a unique opportunity to learn what went wrong. A properly conducted evaluation can tell you what you should and should not do to avoid similar disappointments in the future.

Based on the result of the evaluation, you should adjust your activity, if needed. In that case also make sure you decide when you will evaluate the adjusted activity again. It may also be that the results of the evaluation show that you need to consider developing a new activity or give priority to another activity that performs better.

Things to keep in mind

Just as with pre-testing previously, the evaluations should preferably not be conducted by the persons who have developed the activity. If you developed the activity, it is acceptable for you to be involved in the evaluation, but you should not be the person responsible for judging your own work, as you may well be biased. If for whatever reason the only option for evaluating is for you to do it, it is still better to do the evaluation yourself than to have no evaluation at all, however you should remain aware that you may have an interest in certain results.

It is also important that the questions asked during the evaluation, as well as the tools and methodology, are the same as those used during the baseline measurement of the activity. This will allow you to compare the results.[44]

Also keep in mind that the 5E model, which has evaluation at its centre, is a useful tool in order to see whether the activity is successful in engaging the pupils and making them explore, explain, elaborate and evaluate, or instead whether changes and improvements are required.

And finally, when evaluating the activity, make sure that you also include the teacher's guide in the evaluation.

[44] Please note that, unless you evaluate your activity as part of a controlled study, in the time between when the baseline and evaluation measurements are conducted, there may also have been external factors besides your activity that may have influenced what you aim to measure. Keep this in mind when interpreting the results of your evaluation measurements. Furthermore, there may be additional questions that you may want to include in the evaluation measurement, but which were not included in the baseline measurement. Even though you have no baseline to compare it with, asking these additional questions may still be valuable to you.

Do not be afraid to evaluate!

Although conducting proper evaluations may seem like a lot of work, there are usually good opportunities to evaluate traffic safety activities targeting children and youngsters. It is important to try and conduct evaluations even if you are unable to satisfy all requirements "by the book". As a traffic safety and mobility education practitioner or organisation, you may not have all the necessary knowledge or skills in-house to perform evaluations. Researchers at universities, for example at the educational or social sciences departments and/or specialised research institutes, can help you with setting up and carrying out a scientifically sound evaluation plan or conduct the evaluation for you. Alternatively, consultancies may be able to help with this as well, although they may also be more expensive.

8.1 WHY EVALUATE?

There is a number of very good reasons to properly evaluate traffic safety and mobility education activities:

1. It is most important to know if the activity works or not, i.e. if it leads to any effects in terms of road safety, based on its previously defined objectives and your theory of change one-pager. An effective activity is also easier to 'sell', meaning that it is easier to convince teachers and others to implement it.
2. It is very interesting to know *why the activity (or part of the activity) is successful or unsuccessful,* because this gives you insights into how it can be improved in the future.
3. Evaluation allows you to know if the activity was *cost-effective or not,* and it helps you justify the cost of the intervention to commissioners and/or financing parties or agencies.
4. Last but not least, sharing and disseminating the evaluation results can help *grow the existing knowledge* in the field of traffic safety and mobility education activities, which is very useful for future initiatives.[45]

Different types of evaluation

Addressing each of the above reasons requires a different type of evaluation, namely an outcome evaluation (effects), a process evaluation (why effects occur or not), and an economic evaluation (cost to effect ratio).[46,47]

- The **outcome evaluation** will tell you if the activity works or not. It measures the effect(s) of the activity on collisions (if possible) and on specific, predetermined variables such as observed or (self-)reported behaviours, skills, knowledge, beliefs/attitudes, subjective norms,

[45] Delhomme et al. (2009), Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns (CAST Manual). https://bit.ly/CASTManual; Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

[46] In addition to outcome, process and economic evaluation, there is also formative evaluation (or pre-testing), which may provide very useful feedback about the activity's components. This type of evaluation is needed to make improvements while the activity is still being developed, and is described in detail in Step 5.

[47] Delhomme et al. (2009), Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns (CAST Manual). https://bit.ly/CASTManual

perceived risk, and risk apprehension. It thereby informs you about whether you have succeeded in achieving the outcomes you set in your objectives.

- The **process evaluation** assesses whether the activity is operating as planned, if it is reaching the target audience, and to what extent. Results from this evaluation will help you in interpreting the results of the other evaluations.
- The **economic evaluation** assesses whether the activity has been a worthwhile use of the resources, or whether those resources could have been better and more effectively used on other activities. The two types of economic evaluations are:
  - Cost-effectiveness analysis (CEA), which relates the cost of the activity (see Step 2.4) to its performance by measuring outcomes in non-monetary form, and is a measure of ***effectiveness***. These non-monetary outcomes are, for example, the number of participants who have gained knowledge due to the activity (e.g. the number of pupils who now know the priority rules for pedestrians and cyclists) or the number of participants who have changed their behaviour as a result of the activity (e.g. the number of pupils who now use proper bicycle lights in the dark).
  - Cost-benefit analysis (CBA), which compares monetary benefits with the costs of the activity and is a measure of its ***efficiency***. This monetary benefit could, for example, be reduced costs due to the reduced number of collisions, deaths and/or injuries.

8.2 PERFORMING OUTCOME & PROCESS EVALUATIONS

Outcome evaluations: Using indicators

The general, overarching goal of any traffic safety measure is always to prevent collisions and thereby to prevent road deaths and injuries. This reduction is also the long-term outcome we would like any traffic safety and mobility educational activity to have. However, in many cases it may be hard to establish a direct link between an activity and an outcome in terms of collision or injury reduction, due to the large number of other factors that can influence the collision or injury rates (weather conditions, traffic conditions, changes in legislation, enforcement policy, infrastructure, etc), and, as set out in more detail in Step 8.4, the large samples needed to draw valid conclusions.

To overcome this, so-called indicators are used instead. Indicators are intermediate factors that we know are correlated with collisions and that can be used as a measure for outcome effects. Indicators are linked to the specific operational objectives for the activity. They can be observed behaviours, self-reported behaviours, skills, knowledge or attitudes (beliefs, subjective norms, perceived risk, risk apprehension, etc).

For some outcome indicators, the link with collision rates is direct and well-established. For example, pedestrians and cyclists who cross the street on a red light are clearly linked to an increased risk of a collision, which can be addressed by a measure focusing on adhering to traffic lights. Another example – especially relevant for youngsters – is driving speed, as a higher speed involves a higher risk of a collision, which can be addressed by a measure on speed behaviour.

For other indicators, such as knowledge, skills or attitudes, the link with collision rates may be indirect or less clear. Behavioural models are useful to determine in what way indicators of knowledge, skills or attitudes relate to actual behaviour and, consequently, to final outcomes in terms of collision rates.

The Norwegian Council for Road Safety (NCRS) has listed three groups of indicators according to the level of quality they offer to allow valid conclusions on the final outcome, namely collision and/or injury rates:[48]

- Type 1 indicators offer the weakest link, and involve measures such as *awareness and appreciation* of the activity by the target audience. However, they can provide important information to work out why an activity was more or less successful (process evaluation) and is therefore useful, even though such information does not allow for conclusions on the effects of an activity on collision or injury rates.
- Type 2 indicators offer an indirect link, and involve intermediate variables such as changes in *knowledge, motivation and attitude*. Although these may be necessary conditions for changes in behaviour to occur, they may not be sufficient to establish a direct link with collision rates.
- Type 3 indicators offer the most direct link to collision or injury rates, and involve observable behaviours such as protective equipment wearing rates (wearing a cycle helmet, reflectors, seatbelt, etc), speeding behaviour, etc.

Therefore, while in the long run the outcome of traffic safety and mobility education is the reduction of road deaths and injuries, the short term outcome is related to the indicators: the pupils' knowledge, attitudes and behaviour, as well as the teachers' attitudes. The teachers' attitudes towards the activity will be determined by whether they find that the activity lives up to educational principles, the goals given for the subject, how useful the teacher's guide was, ease of understanding, correct time allocation, the pupils' interest levels, etc.[49] The teachers are just as important a target group as the pupils, because if they do not find the activity relevant, usable and up to certain (educational) standards, they will not use it – which in turn results in the undesirable situation in which the pupils end up no wiser for their traffic safety and mobility education.

Outcome evaluations: Methods

Similar to pre-testing, there are various methods for performing outcome evaluations. Consider which method, or combination of methods if possible, would be most appropriate to evaluate your activity, based on its design and budget.

Questionnaires, a generally quantitative method, can be used to measure knowledge, attitudes and self-reported behaviour. In addition to printed forms, these surveys can also be filled in by the pupils and teachers digitally, for example by sending it to their smartphones or via email, immediately after they have completed the activity. You could also consider sending a follow-up survey several months later, to see what the long-term effects of the activity are.

[48] Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

[49] Keep the 5E model as well as pedagogical models, such as the Didactic Relations Model, in mind.

Examples 21, 22, 24, and 25 show the methods used to evaluate the Danish "Road Safety LIVE" and "Help the Helmetless" activities as well as the Portuguese "Be Seen" project. **Examples 23 and 26** show the questionnaires used during the evaluation of respectively the "Be Seen" and "Road Safety LIVE" initiatives.

Observations, a generally qualitative method, can be used, among others, to find out if the activity has led to changes in behaviour and skills. For example, by observing the pupils riding their bicycles during the practical part of cycling tests, you can see whether the lessons, both theoretical and practical, have had the desired effect on the pupils' behaviour in traffic.[50] In line with the 5E model, observations can also be used to see whether the activity is successful in engaging pupils and making them explore, explain, elaborate and evaluate.

Other qualitative methods include holding interviews with pupils and teachers after they have received or conducted the activity, as well as holding focus groups with teachers.

Process evaluations

Process evaluation is not used to test the effects of an activity, but it adds insight to these effects. It allows you to get better knowledge about the mechanisms that have facilitated the impact of an activity. When performing a process evaluation, you aim to determine whether the activity has been implemented and is working as planned. Process evaluation will therefore show you what mechanisms work well, and which should be improved. If the results indicate that there is room for improvement, you should consider making adjustments to your activity, if possible.

A process evaluation takes place during the activity and might address questions such as:

- Was there an action plan for the activity and if so, was it followed?
  E.g. if your action plan includes the distribution of educational materials in schools: how did you inform the schools and teachers, how were the materials distributed, how many schools or teachers did receive the materials and used them, etc?
- Did the activity include cooperation between team members and other partners, and if so, what were the strengths and weaknesses of this cooperation?
  E.g. if your activity relies on parents or volunteers to support the implementation: did you find enough parents or volunteers willing to give their support, how was the cooperation with these parents or volunteers, etc?
- What was the total exposure – the total number of people exposed to the activity?
  E.g. the total number of pupils receiving training, the total number of schools or teachers participating, what types of schools used your activity (and conversely, which schools did not and why), etc?
- Were the different components of the activity implemented as intended?
  E.g. if your activity consists of a classroom lesson followed by a practical training in traffic: were both parts implemented as they should have been, did both parts receive equal attention?

[50] Traffic safety and mobility education should also include training in practice. For more information on this and the cycling tests, see LEARN! Key Principle #9. http://bit.ly/LearnKeyPrinciples

- In what context and circumstances were the activity's components implemented?
  E.g. did everything run as expected, were there any organisational issues to be resolved?
- What was the duration of the activity? For how long was the target audience exposed to the activity, at what intervals, etc?
  E.g. was it one activity/lesson or a series of activities/lessons; if it was a series, how long did it take to complete?
- Was the 5E model implemented well?
  Engaging: are the pupils motivated, can they use prior knowledge?
  Exploring: are they pupils allowed to come up with suggestions to what could prevent collisions?
  Explaining: are the pupils allowed to communicate their knowledge?
  Elaborating: are the pupils allowed to reflect on their own abilities and behaviour in traffic, and produce other thoughts, feelings & ideas?
  Evaluating: are the pupils allowed to self-evaluate and ask questions and how did the presenter answer these?

8.3 THE IMPORTANCE OF BOTH OUTPUT AND OUTCOMES

The minimum you should do when evaluating

At the very least, the evaluation should tell you whether the activity works or not, and why this is the case. Common measures for process evaluation such as reach (e.g. the number of pupils being taught during an activity) or appreciation of the activity by the target audience (e.g. the number of pupils giving a "good to very good" score for likeability) are not sufficient to tell if an activity works or not. You should combine these process evaluation measures with outcome evaluation measures such as indicators for behaviour, skills, attitudes and/or knowledge in order to be able to determine whether your activity has led to changes or not (see the box on the next page).

The results of the outcome evaluations (effect on behaviour, skills, attitudes, knowledge) are what really count for risk reduction, while the results of the process evaluations will give you the information to interpret the outcome. More often than not, evaluation unfortunately stops after having figured out how many pupils were reached and whether they liked the activity or not. This is not what you want, as it tells you nothing about the effects in terms of risk reduction.

INDICATORS IN OUTCOME EVALUATION MEASURES

Let us assume that you have designed an activity for 12 to 14 year-old school pupils, aimed at reducing the use of smartphones while cycling. Examples of possible outcome evaluation measures would be:

- Behaviour (self-declared):
  - The proportion of the target group that declares "never" to have used their smartphone while cycling in the past two weeks;
  - The proportion of the target group that declares "always" having muted or switched off their smartphone before cycling in the past two weeks;
- Behaviour (observed):
  - o The proportion of the target group that cycles without using a hand-held smartphone, measured at different times and locations in the past two weeks;
- Skills:
  - The proportion of the target group that is able to resist peer pressure related to using their smartphone while cycling;
- Attitudes:
  - The proportion of the target group that is convinced that using their smartphone while cycling puts themselves "very much" at risk of having a collision;
  - The proportion of the target group that finds it acceptable not to immediately answer a call or message while cycling;
  - The proportion of the target group that thinks their peers find it acceptable if they do not immediately answer a call or message while cycling;
- Knowledge:
  - The proportion of the target group that knows it is illegal to use a hand-held smartphone while cycling;
  - The proportion of the target group that knows that using a smartphone while cycling significantly reduces their ability to respond adequately in common traffic situations.

The hierarchy of evidence

There are different evaluation designs that you could use to assess the effects of your activity. This section sets out a scale ranging from methods that give you the most reliable evidence on the effects of your activity, down to a method which provides you the least reliable evidence for determining whether your activity had any effect.[51]

This section primarily aims to show you that, even if you cannot apply the ideal requirements for outcome evaluations (see Step 8.4), there are other types of evaluations that could also provide valuable insights and knowledge on whether the intended outcomes have been fulfilled.

[51] This scale is based on the hierarchy of evidence pyramid and adjusted to evaluation methods commonly used for traffic safety and mobility education.

Meta studies

Meta studies are systematic reviews of published research. It is very unlikely that your activity, and its evaluations, will lead to a meta study on it. Nevertheless, any published research on your activity and its evaluation may be included in a meta study, e.g. on the effectiveness of traffic safety and mobility education in general.

Randomised controlled trials (RCTs)

RCTs are evaluations using control groups (see below as well as in Step 8.4), where the data from baseline and post-activity measurements of a group that has received the activity (the experimental group) is compared with the data on a group that has not received the activity (the control group).

Moreover, the participants are randomly assigned to one of the two groups, in order to minimise any bias by ensuring that the groups are similar in factors such as age, gender, type of school, and socio-economic background.

RCTs are 'gold standard' evaluations and the best way to establish the effects of your activity. However, given their complexity they should be seen as research, to be done by professional researchers. This in turn also means that RCTs can be very expensive.

Example 24 provides more details on the evaluation of the Danish "Road Safety LIVE" initiative using a randomised controlled trial.

Control groups

Control groups are similar to RCTs but less complex as they are not randomised, and less costly if no professional researchers are involved (although ideally they would be).

More information on control groups is provided in Step 8.4 on the ideal requirements for outcome evaluations, and example 1 in Part IV shows how you could use a control school in your evaluation design.

Baseline and post-activity measurements

Conducting baseline and post-activity measurements will allow you to compare the situation (e.g. observations of behaviour) and the target/sample group´s answers in quantitative surveys before and after your activity. The evaluation will thereby provide you with valuable insights and knowledge on whether your activity has led to changes or not, whether the intended outcomes of the activity have been fulfilled, and whether there are aspects that could be improved.

Your evaluation design should therefore at least include baseline and post-activity measurements, with the post-activity measurements including both outcome and process evaluations.

Post-activity measurements

Post-activity measurements can tell you whether certain objectives are achieved (e.g. whether the objective for a target percentage of pupils emerging with the desired knowledge or intentions was achieved).

However, without a baseline measurement to compare the results to, the post-activity measurements alone cannot (reliably) tell you whether your activity had any effects (e.g. whether it had positively – or perhaps negatively – contributed to achieving this target percentage).

In your post-activity measurement, you could include questions on whether the pupils, for example, felt they have learnt something new, or whether they changed their opinion. However, you should be aware that these would be self-reported effects.

Therefore, if your only option is to do post-activity measurements (without being able to do the baseline measurement), it is still better to conduct both outcome and process evaluations rather than not evaluating at all, as it may still provide you with useful information.

If you have already done an evaluation which showed your activity had positive effects, you could continue doing post-activity measurements for the activity as a form of quality control (e.g. keep measuring whether the pupils attain the knowledge or attitude targets, whether they appreciate the activity, etc). These results could then be included in communication with possible funders. (See examples 25 and 26 on how, following the positive RCT evaluation of the Danish LIVE initiative, post-activity measurements were used to evaluate whether the activity's objectives continued to be achieved.)

The extras

If you have the resources and knowledge, performing economic evaluations such as a cost/benefit analyses (CBA) or cost/effectiveness analyses (CEA) is the "cherry on the cake" to top off your evaluation. They will show if the money and resources that were invested in the activity were well spent, and will indicate ways to improve the cost/benefit and cost/effectiveness ratio of future activities.

In a cost/benefit analysis, the road safety benefits are translated into an economic, monetary value. As traffic safety and mobility education activities aim to improve road safety, they aim to prevent people from being killed or seriously injured on the road. From a monetary perspective, the activities would thereby prevent the costs associated with every road death and seriously injured person.[52]

8.4 IDEAL REQUIREMENTS FOR OUTCOME EVALUATIONS

The ideal outcome evaluations are costly in terms of both time and money. It is nevertheless important that activities are evaluated, and Step 8.3 has set out what should be evaluated as a minimum.

Conducting a proper outcome evaluation means you have to take into account a number of basic requirements regarding sample size and evaluation design. If these are not fulfilled, it will be very difficult to draw valid conclusions from the evaluation.

Sample size

It is important that the changes you find evidence for are not due to chance, but can be attributed with a high degree of probability to the activity you have implemented. This is

[52] Although every life is priceless, the cost per road death is estimated at between 0.7 and 3 million Euro, depending on the country. Wijnen, Vanden Berghe and Schoeters, (2017), Analysis of road crash costs in EU countries. SafetyCube presentation. https://bit.ly/3kLuzbz

known as "statistical power". In practice, this means the activity must have a sufficient sample of participants and/or a sufficiently long follow-up time so that any detected changes are clear and reliable.

The number of people needed in a sample depends on what you wish to measure and the impact and magnitude of the changes you wish to prove. If you want to demonstrate the impact in terms of collisions or injuries in traffic, you will need large sample groups. This may be difficult for a single teaching activity, as you would need a very large-scale activity to make such an analysis. This would therefore be more appropriate for an analysis of the impact of traffic safety and mobility education across a whole country, rather than a single activity. However, if you are content with demonstrating changes in behaviour, you will not need as many people – a smaller sample size would be sufficient, although it is difficult to give an exact figure, as this depends on the target group.

Evaluation design: control groups, planning and methods

To ensure that a change can be attributed to an activity, you must have a group that has not been subjected to the activity in question. This group is called the control group. If you find a sufficiently significant change in the experimental group (the group that has participated in the activity), while at the same time you do not find such a change in the control group, you can be reasonably certain that the activity has been effective.

It is however important that the participants in the two groups are equal in terms of different background criteria, such as age, gender, socio-economic background, and the types of school they attend. Preferably, they should also have the same level of 'traffic safety', meaning that you should not, for example, compare a control group with pupils who seldom use their bicycle with an experimental group with pupils who are experienced cyclists (or vice versa) when the intervention focuses on bicycle training.

Furthermore, it is important to note that evaluations using control groups ideally require the involvement of a third party (such as research institute or consultancy) that is highly experienced in conducting such evaluations. These types of evaluations can therefore be very costly, both in terms of money and time, and are therefore not commonly used for traffic safety and mobility education activities.

Another important factor in the evaluation design is the timeframe and planning of the measurements you will carry out. You should have at least one measurement before the activity (the baseline measurement, see Step 2.3) and one after the activity (the post-activity measurement). Taking several post-activity measurements, e.g. one right after the activity and a follow-up six months later, provides information on the stability of effects.

Ideally, these baseline and post-activity measurements include both quantitative and qualitative evaluation methods (see Step 8.2), especially the observations before and after the activity if your activity aims to improve behaviour or skills.

8.5 QUALITY ASSURANCE

It is important to not consider your activity as something you just develop once, but rather as something you continuously seek to improve. Just as with the pre-test (the formative evaluation), the results of the process and outcome evaluations will show which aspects of your activity are working well and what should be improved. If the results of these evaluations show that there is room for changes and improvements, you should consider these and, if possible, implement them. The results of the evaluations may also show that you may need to consider developing a new activity or give priority to another activity which is performing better.

You should also regularly review your activity to see whether there is a need to update it in light of the latest knowledge, as well as updated figures for collisions. This not only includes the evaluation results of other relevant activities, but also knowledge coming from outside the road safety community, such as developments in neuroscience and psychology, technological innovations and solutions, and improved pedagogical methods. Your activity should furthermore be kept up with developments in school systems, the methods used, and their way of thinking.

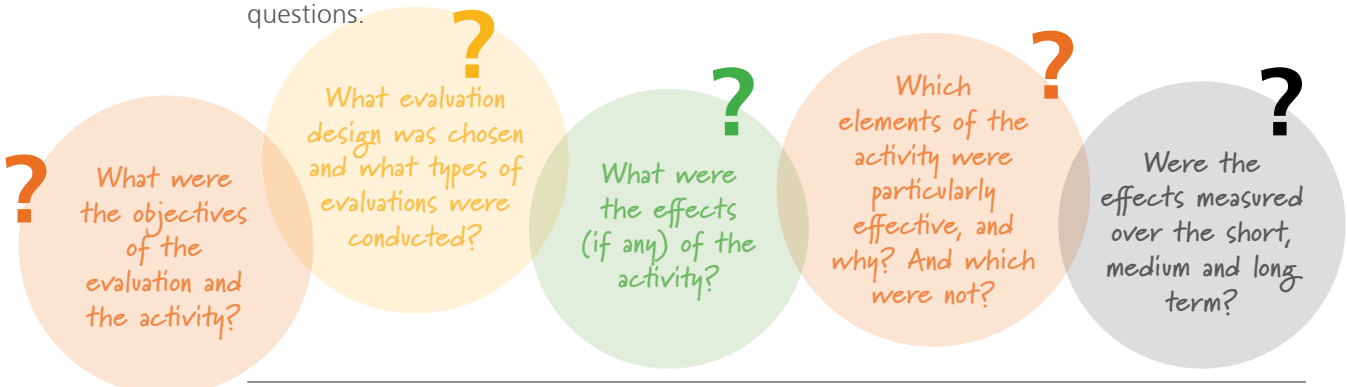
You should also regularly evaluate whether your activity is still up to date and relevant with regard to road safety and mobility trends.[53]

8.6 REPORTING

As a final step, it is recommended that you write a final report in which you gather all the information on the activity in one document, including the evaluation and lessons learnt. This will not only be useful for potential funders of the activity, but will also help you improve future activities and avoid past mistakes.

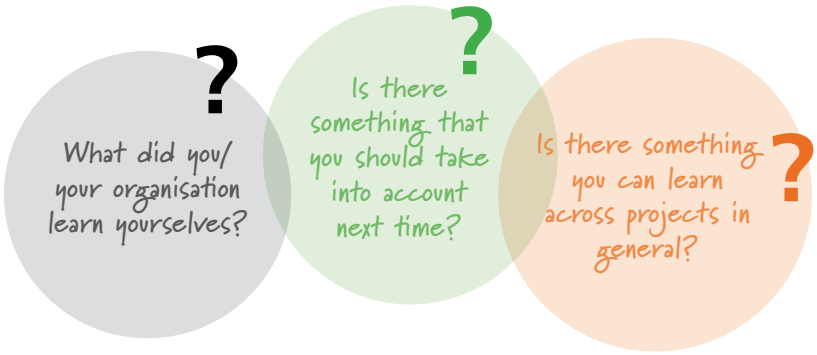
Documentation that you prepared earlier on in the development of the activity, such as your theory of change one-pager (in Step 3.2) and the implementation plan (in Step 7.1), could be useful starting points to expand upon with lessons learnt from all steps as well as the results of evaluation.

With regard to the evaluation, the report should at least give an answer to the following questions:



[53] LEARN Key Principle #10: Keep traffic safety education up to date. ETSC (2020), Key Principles for Traffic Safety and Mobility Education. http://bit.ly/LearnKeyPrinciples

With regard to the lessons learnt, it is important that you also have a good system in place in your organisation to learn from your experiences. This is an on-going process if you want to develop and further improve your work, and not simply repeat it. The reporting should therefore reflect on the following questions:



CHECKLIST STEP 8

- ☐ Execute your evaluation plan
- ☐ Based on the results of the evaluation(s), adjust your activity if needed and decide when to evaluate again
- ☐ Ensure quality assurance
- ☐ Write a final report

FURTHER READING

Chapter 4 of the Norwegian Council for Road Safety's model for behaviour modification provides more **in-depth information on the evaluation of traffic safety and mobility educational activities,** illustrating the different types of evaluation with practical examples.

Bjørnskau, Gregersen, Isnes, Grytli, Johansen & Strømme (2017), The Norwegian Council for Road Safety's model for behaviour modification. http://bit.ly/ncrs-mbm

The CAST Manual comprises extensive coverage on how to plan and carry out evaluations, **detailing scientifically sound evaluation methods and their requirements.** The CAST Manual also covers **writing a final report** in extensive detail.

Delhomme et al. (2009), Manual for Designing, Implementing, and Evaluating Road Safety Communication Campaigns (CAST Manual). https://bit.ly/CASTManual

The Royal Society for the Prevention of Accidents' (RoSPA) E-valu-it toolkit provides **online guidance through the evaluation process,** including recommendations and report templates to complete the evaluation.

Royal Society for the Prevention of Accidents (n.d.), E-valu-it Toolkit. http://bit.ly/2OmTlTg

PART 4

HOW TO USE THE MANUAL

04

This part sets out examples to illustrate how the steps of the guidelines can be used and implemented in practice. It is important to note that the examples presented in this part serve as inspiration. Even though specific educational activities may have been evaluated well in one country, this does not necessarily mean that they will have the same effect in another country, due to local differences as well as cultural and structural differences. This underlines that you should always test your activity before it is launched.

The first example shows the application of the whole model to one activity and thereby aims to provide an understanding of the process with all its steps as well as their interactions. The rest of the examples show in more detail how a specific step of the manual is applied to an activity. They also show how different organisations are working.

The examples provided in this part are mainly from countries that drive on the right-hand side of the road. Readers from left-hand drive countries should infer the relevant changes to make the text applicable for their country.

OVERVIEW OF EXAMPLES

1 EXAMPLE 1: APPLYING ALL STEPS TO A SAFE CYCLING ACTIVITY

Related Steps	All steps of the manual
Age groups	11 and 12 year olds

This example illustrates how all the steps set out in the manual can be applied in practice. As a case study, it applies all steps to a small-scale activity that aims to teach children aged 11 and 12 how to use their bicycles safely. We start with Step 1 and show from there how the different steps help shape our activity.

We start the development of a new activity with Step 1.

1 ANALYSE

Analyse how the problem manifests itself. What are the target group's conditions and needs? Link the problem area to your strategic plan and identify the factors that contribute to unsafe behaviour.

Let us assume that, according to our general strategy, the national goal is that at least 80% of pupils should walk or cycle to school, and that this should happen without any increase in collisions and injuries. The schools furthermore have a responsibility to teach the pupils how to ride their bicycle safely, and in our example situation, the school has given the basic bicycle training in Grade 4 (9 and 10 year olds), and all pupils passed the test.

However, the teachers have now seen that pupils in Grade 6 (11 and 12 year olds) are being persuaded by their peers to ride their bicycles in places where this is not permitted or where this is especially risky, that they carry more people on their bicycles than is permitted, and that some minor incidents have occurred. Moreover, many of the pupils do not use their helmets.

The school wishes to address this situation and in order to develop an activity,[54] we need to look more closely into the problem and gather more information to include in the strategy for the activity. We start with interviews and simple tests to find out what kind of knowledge the pupils have about cycling, and what they know about the challenges and common causes of incidents. As the teachers indicated that they had the impression that peer pressure can be an important influence, we also want to find out about the impact of social relationships. We should therefore ask ourselves whether there is anyone in the target group who merits special attention, because of their influence on other members of the group.

2 DEFINE OBJECTIVES

Specify the objectives for the activity. Take a first look at the test and evaluation designs and a glance at the costs.

When addressing the safe use of bicycles, we should not choose an excessively broad scope. As the activity should not provide too many messages, we must make some choices. For this

[54] The focus of this example is on the development of a small-scale activity for a local school, as this allows for the application of the manual's steps to be demonstrated more clearly. As most of the other examples in this part of the manual show the application of the steps to activities of a larger scale, this example demonstrates that the manual's steps can also be applied to small-scale activities.

example, we decide not to talk about using helmets, but focus on understanding risk and the need to be attentive to one's surroundings on the road. Based on the information gathered in Step 1, we are aware that the pupils know what is right, so we want to strengthen their ability and willingness to behave in a safe way. The effect of the activity should therefore be seen in improving the actual behaviour, and this is therefore specified as the objective of the activity.

In order to find out whether the activity improves the actual behaviour, we also need to think about the evaluation design at this stage. A simple formula for an outcome evaluation would be to investigate whether pupils who have received training have changed their behaviour towards acting more safely in traffic compared with another group that has not received the same training.

For our example, let us assume that two or more schools have faced the same safety issue. We decide that we will implement the activity at School A, but not at School B, allowing us after the activity to see whether receiving the activity leads to safer cycling. When selecting the schools, we make sure that they are alike with regard to the type of pupils (e.g. socio-economic background, what they have been educated in so far, etc).

In order to ascertain how the pupils use their bicycles *before* having received the activity, we conduct the baseline measurement. As we have no extra budget for hiring an external body specialising in this, we have to do the work ourselves. In this example, we observe and survey both schools at the beginning of May:

- We observe how pupils ride their bicycles to and from school.
- We observe how many pupils use a bicycle helmet, lights, and reflectors.
- We observe how pupils cross roads (with or without traffic lights).
- We observe whether pupils signal and how they position themselves on roads/bicycle paths/pavements. tWe design a questionnaire for the pupils, containing questions about how they ride their bicycles and about their knowledge and attitudes towards traffic safety, focusing in particular on safe cycling.

3

ACHIEVING CHANGE

By now you have decided whether the activity's outcome is related to actual behaviour or intentions to engage in the behaviour, and whether the outcome will be knowledge, skills, attitudes or (intended) behaviour. Define what you seek to modify and how you will modify it.

From our problem analysis in Step 1, we know that some pupils ride their bicycle all the time, while others do it more rarely. As the degree of motivation and commitment varies considerably, we need to start with a shared experience and a practical assignment to include everybody. Bad habits in particular are a factor that need consideration. We know from literature (and previous experiences) that changing bad habits is often more difficult than learning new ones. It is thus important to establish some reward systems and pay special attention to the least disciplined pupils.

For our activity, our focus will be on educational measures. We could, however, have expanded the activity by combining it with several measures outside education, such as letting the pupils contact the local authorities to improve the maintenance and lighting of bicycle paths, or establish safer road crossings.

THEORY OF CHANGE: SAFE BICYCLE USE

RES	TARGET GROUPS	ACTIVITIES	OUTCOMES/RESULTS/EFFECTS
X WORK HOURS	**11 TO 12 YEARS OLD PUPILS**	• One interactive lesson • Teacher's guide	**BEHAVIOUR:** Rides only in traffic according to the traffic rules: • Looks backwards before turning/before stopping/before positioning • Indicates turn/turns in time/stops/ stops in time • Holds back when obliged to give way/for fellow road users/ for oncoming road users/for pedestrians • Positions correctly before turning/ rides on the cycle path if there is one/does not ride on the pavement/does not ride in the pedestrian area • Does not ride through a red light • Follows signs' instructions • Does not ride with more people on the bicycle than allowed
	TEACHERS		
	TRAFFIC SAFETY TEACHERS		
X EURO	**MUNICIPALITY**	Pupils possibly to contact municipality to present results found	
	PARENTS	Parent information (letter) to motivate follow-up	

4 DESIGN

Based on the previous steps and taking into account the 5E model (engage, explore, explain, elaborate and evaluate), design your activity. Finalise the evaluation plan, specify what will be evaluated, and determine the design and method of the evaluation. Make a plan for production and implementation.

We then design the activity in line with the 5E model.

Engage: How can we engage the pupils?

- What kinds of cycling incidents or near-misses have the pupils experienced on their way to school and during their leisure time? Give the pupils time to think and make notes. Following this, a list can be written on the blackboard. Are the pupils able to put some of these incidents or near-misses into categories?
- What types of incidents do they think are most common among pupils of their age? The pupils come up with their own hypotheses, and these are summed up on the board.

Explore: What kinds of activities might contribute towards the pupils finding their own solutions to the issues?

- The pupils can design a questionnaire/survey to map incidents or near-misses near their school, and let other classes in the same year or even all classes in the school respond to these.
- Do these results conform with what they anticipated and wrote down as part of the 'engage' activities?
- Collect the new information from the entire school and/or from the class in a presentation. Make pie charts or bar charts.
- The results can be presented before an audience, for example another class in the same grade, teaching staff or at a parent/teacher meeting.

Explain:

- The pupils explain and argue for the results shown in their survey.
- What might be the reasons for these being the most predominant bicycle incidents? The teacher can contribute expert knowledge.
- What measures can each individual pupil initiate, and what can the school/community do to reduce the adverse effects of cycling incidents? The teacher can contribute expert knowledge.

Elaborate: An extension of perspective might be to examine framework factors, for example the following aspects that we know about typical bicycle incidents:

- Sliding on gravel or slippery surfaces
- Things getting in the wheel spokes
- Running into obstacles
- Losing balance
- Being unable to stop before hitting an obstruction

It might be worth looking more closely at behaviour change: where do we choose to cycle; what is dangerous about carrying more than one person on the bike, etc.

Can this knowledge that the pupils have acquired contribute towards any improvements in the municipality where they cycle? What can be done? Contact the municipal authorities and present the results? Write to the local newspaper?

Evaluate: This is a part of the learning process.

Evaluation is placed in the centre of the model because it should be included in all phases of the learning process. We talk about interim evaluation and final evaluation. In addition, the pupils themselves must be trained to evaluate their own learning. This can be done in different ways, but in general, it is a matter of the individual pupil and the class as a whole, along with their teacher, evaluating the methods, data and conclusions. Could we have done something differently? Did we get answers to the questions we posed through the methods we chose to use? Are there any uncertainties or errors in the collected data? What kinds of conclusions can we draw? Do they align with other knowledge we have collected from statistics?

Based on our earlier considerations as well as the activity's design, we finalise our evaluation plan. We also already start thinking about the plans for production and implementation.

5 PRE-TEST

Make a pre-test design and test your activity. Based on the results, make changes if needed. You may therefore have to go back to Step 2, 3 or 4.

Based on the design, we create mock-ups of our envisaged activity, so we can test whether our activity achieves the desired changes. The school in our example is a large one, and we therefore test the teacher's guide as well as the activity in one class in a focus group setting. The feedback received from the teacher reveals that the teacher's guide can be misunderstood, and through the focus group we identify new factors that contribute to unsafe behaviour. Following the pre-test, we revisit the earlier steps and adjust the activity and teacher's guide accordingly.

6 PRODUCTION

Produce the materials necessary for the activity, whether digital, printed or both.

Given that the example concerns a small-scale activity at a local school, we involve the children in the creation of the materials necessary for the activity (as a method for engagement). Should we wish to implement the activity at a lot more schools later on, we should consider at that point what the best way of producing the material would be.

7 IMPLEMENT

Make a communications strategy with both bottom-up and top-down approaches. Include cooperation with other actors, like communities, schools, parents, police, and others.

Depending on our analysis in the first steps and our experience so far, we decide what the communications strategy should contain. First and foremost, this project is a process influencing attitudes and willingness to do the right things, so it is important that the parents are also following up on the issues.

If the pupils have acquired new knowledge regarding any improvements in the municipality where they cycle and have suggestions on what can be done, we could also contact the municipal authorities and present the results.

In line with our evaluation design, we make sure that we implement the activity in School A, but not in School B.

8 EVALUATE

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

In Step 2 we conducted the baseline measurement at both schools in early May, and as part of Step 7 we implemented our 'Safe Bicycle Use' programme at School A later in May. At

School B, no activity related to safer cycling was done during the same period.

In order to find out whether our activity had an effect, we repeat the measurements (both the observations and the questionnaire we did in Step 2) at both schools – for example in mid-June, and perhaps again at the start of the new school year in August.

If we find that the pupils at School A have positively changed their behaviour towards traffic safety and that the behaviour of the pupils at School B has remained largely unchanged (as measured through both observations and the questionnaire), we can conclude that the 'Safe Bicycle Use' programme has very likely had a postive effect.[55]

In addition to measuring outcomes, we should also evaluate the process, including the scope and content of 'Safe Bicycle Use' at School A, whether the teachers and pupils (or parents, when included) felt that the training worked, whether there were aspects of the activity that did not work well, etc. Another option here is to supplement the questionnaire that was given to pupils in School A in the post-activity period with questions on their opinions and perceptions of the training.

In our example, the evaluation showed that the activity has probably had an effect, and that it was appreciated by both teachers and pupils. Had the results been different, we should have revised the activity accordingly, or maybe even stopped providing the activity altogether and developed a new one.

Based on the development and evaluation of the activity, particularly the lessons learned, we draft a final report.

[55] As we only implemented the activity in one school, based on the good results we can only state that the activity is *likely* to have had a positive effect. In order to establish with more certainty whether the programme has positive effects, we would need to implement and evaluate the programme in more schools.

02

2 EXAMPLE 2: THE GENERAL STRATEGY OF THE DANISH ROAD SAFETY COUNCIL

Related Steps	1 The General Level Strategy for the Target Age Group
Age groups	6 to 14 year olds

This example shows how the Danish Road Safety Council's general strategy for 6 to 14 year old children is structured and what it contains.

An example of a general strategy is the Danish Road Safety Council's strategy for 6 to 14 year old children. The general strategy covers the following elements, in the order given in the text below:

Background information

The general strategy starts by providing background information and giving context. The target group of 6 to 14 year olds is in line with the Danish education system. Besides this target group, the Danish Road Safety Council has further general strategies for those in pre-school (0 to 5 years old) and youngsters (15 to 25) as well as thematic strategies.

It notes that detailed information, including on activities, is set out in the action plan for 6 to 14 year olds. The background information furthermore states that the strategy's structure is based on the CAST model, which emphasises being explicit about the knowledge, skills and evidence bases.

Collision data

Collision data is provided for 6 to 14 year olds, covering how many children were killed and injured, with divisions presented based on gender, age, type of road user, geographical location, month of the year, day of the week, and hour of the day. The general strategy also compares police records with data from emergency rooms, showing inter alia that police figures only reflect 4.5% of the total number of reported injuries.

External knowledge

In relation to the age group 6 to 14, setting out the knowledge on their brain development, their cognitive development, their socio-economic development, and their development in learning.

Internal knowledge

This section sets out the results of their own evaluations and studies. These illustrate the national context and learning environment in which the education is given (for example, how teachers and head teachers view traffic safety and mobility education, or how parents feel that children should experience good role models). It also shows where opportunities exist for improvement, both in general terms and activity-specific terms.

Actor analysis

Provides a reflection on the other organisations with which the Danish Road Safety Council 'competes' for a place on the school's agendas, for example organisations addressing other health issues such as alcohol, drugs and smoking.

Target group

Covers both the primary as well as secondary target groups.

Boundaries

Describes what places the Danish Road Safety Council would not focus on, such as leisure organisations.

Strategic goals

The overall reduction of children killed and injured, with activity-specific goals set out in the action plan.

Overall initiatives planned

Cooperation partners

The general strategy also includes a **theory of change one-pager** on their overall efforts related to providing traffic safety and mobility education. In addition, there are four further theory of change one-pagers: three targeted to a specific educational level within the target group (6 to 9 years old, 10 to 12, and 13 to 15) and one on how to market traffic safety and mobility education to teachers.

The theory of change one-pagers for the 6 to 9, 10 to 12, and 13 to 15 groups are set out on the following pages. Please note that, contrary to the explanation in Step 3.2, the asterisks (*) are used to indicate the national goals for traffic safety and mobility education, and not the key performance indicators. The Danish Road Safety Council also set key performance indicators, including:

- increasing the number of schools that have a traffic contact teacher;
- increasing the number of schools which:
  - teach the pedestrian test (6 to 9),
  - teach the cycling test (10 to 12), and
  - have a "Road Safety LIVE" visit and/or teach "360 degrees" (13 to 15).

THEORY OF CHANGE: SCHOOLS – 6 TO 9 YEAR OLDS

RES	TARGET GROUPS	ACTIVITIES	OUTCOMES/RESULTS/EFFECTS
X WORK HOURS X DANISH KRONEN	**6 TO 9 YEAR OLDS** (GRADES 0-3) (Pre-school) **CLASS TEACHERS** **TRAFFIC SAFETY TEACHERS** **OTHER TEACHERS & SOCIAL EDUCATORS** **SCHOOL MANAGEMENT AND BOARD** (contact parents) **PARENTS** **MUNICIPALITY** (School department as well as Technical & Environmental department in municipalities) **POLICE** **OTHER COOPERATING PARTNERS:** • School and parents • Centre for Teaching Material	**PEDESTRIAN TEST** (Grades 0-1) (total of 4-6 lessons) • Theory ("On a walk with Albert and…") • Traffic training (walk in the local area) • Practical Test (possibly incl. police) • Diploma + pedestrian license • Suppl. tasks ("The Big City") • Teacher's guide + site **SMALL CYCLING TEST** (Grades 2-3) (total of 6-8 lessons) • Theory ("On a bike ride with Albert…") • Traffic training (cycling exercises in closed area) / Small cycling test • Suppl. tasks ("The Big City") • Diploma + Small bicycle license • Teacher's guide + site **Div. Supplementary materials (play, drawing, etc.)** **MINI HELMET** (Grades 0-3) (1 lesson) • Bicycle helmet experiment with an egg • Teacher's guide + site **OVERVIEW OF MATERIAL** (traffic safety teachers and other teachers) **MUNICIPALITY, TEACHERS / SOCIAL EDUCATORS, POLICE, ETC:** • Network meetings, traffic courses, counseling / support, teaching, outreach efforts, fairs, advertising, etc. **STRUCTURAL CHANGES:** • Legislation, national goals for Grades 3, 6 and 9, booklet / common goals, traffic policy	**BY END OF GRADES 0-1** (Pupils) • Knows basic traffic rules for pedestrians * • Knows risk factors for pedestrians, including different types of road users • Can walk safely in groups when the class is on a trip • Uses the safe walking route • Wears a bicycle helmet (and correctly) when cycling **BY END OF GRADE 3** (Pupils) • Can walk alone on foot in the local area and follow traffic rules* • Knows basic traffic rules for cyclists • Can cycle safely in closed area (manoeuvre / balance / orientation) * • Can ride a bicycle safely with an adult • Is aware of own abilities on the bike • Uses the safe bike route* • Understands the importance of a bicycle helmet • Is able to exemplify safe cyclist behaviour (does not cycle without hands on the handlebar, wears a helmet, is alert, etc) **PARENTS** (Adapted to Age) • More parents understand that they are role models for their children (good / bad traffic habits) • More adults train with their children so they become competent in traffic **PARENTS (BY END OF GRADE 3)** • Knows what their child should be able to do in traffic when the child leaves Grade 3 • Knows what their role is • Feels safe with their children moving in traffic **SAFE TRAFFIC CONDITIONS AROUND SCHOOLS SAFE TRAFFIC CONDITIONS AROUND SCHOOLS**

(* = national goals for traffic safety and mobility education)

IN THE LONG TERM

PUPILS GRADES 0-3 (Adapted to Age)

Skills/Competences

- Can (successfully) read the traffic and act based on it *
- Knowledge and understanding of the consequences of one's own and others' behaviour in traffic
- Can choose a safe route for pedestrians *

Attitude

- Believes it is important to comply with traffic rules and behave safely in traffic
- Experiences our materials as relevant, exciting and engaging

Behaviour

- The pupil can travel alone on foot in traffic according to traffic rules *
- More safe, confident and responsible road users who master time spent in traffic (have fewer pupils make mistakes / have more pupils develop good habits to minimise risk):
  - > Demonstrates attention in traffic: Uses both eyes and ears when in traffic; Stops at the kerb and looks ahead; Looks in every direction; Never runs out onto a road without looking ahead; Makes eye contact with the driver when wanting to cross the road; Pays special attention to driveways, gates, garages and parked cars; Only walks across the road at a good pace, etc.
  - > Walking: Walks correctly on roads without pavements
  - > Cycling: Uses helmet and lights; Signals with their hand when to turn; Raises hand when stopping; Looks back and to the side; Rides on the right side of the bicycle lane/road; Knows and follows road signs, Stops at shark's teeth, etc
  - > Bus: Knows and respects rules regarding buses
  - > Visibility: Uses reflective material when appropriate
- More self-transporting children
- After Grade 3: More pupils have completed the Pedestrian Test and Small Cycling Test.

STRENGTHENED COOPERATION WITH SCHOOLS, MUNICIPALITIES AND POLICE

EQUIP PUPILS, SO THAT WHEN THEY LEAVE SCHOOL THEY ARE PREPARED FOR THE 10 MOST DANGEROUS YEARS IN TRAFFIC

FEWER TRAFFIC COLLISIONS

REDUCE THE NUMBER OF TRAFFIC COLLISIONS

FEWER ROAD DEATHS
(number and loss of living years)

FEWER INJURED
(lightly and seriously)

EXAMPLE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

THEORY OF CHANGE: SCHOOLS – 10 TO 12 YEAR OLDS

RES	TARGET GROUPS	ACTIVITIES	OUTCOMES/RESULTS/EFFECTS
X WORK HOURS X DANISH KRONEN	**10 TO 12 YEAR OLDS** (GRADES 4-6) **TEACHERS** **TRAFFIC SAFETY TEACHERS** **(social educators in school-based leisure time facilities)** **SCHOOL MANAGEMENT AND BOARD** (contact parents) **PARENTS** **MUNICIPALITY** (School department as well as Technical & Environmental department in municipalities) **POLICE** **OTHER COOPERATING PARTNERS:** • School and parents • Centre for Teaching Material	**SCHOOL CAMPAIGNS** **CYCLING TEST** (Grades 5-6) (total of 8-10 lessons) • Intro film • Theory test • Theory lessons • (Possible traffic training with parents) • Bicycle check • Practical test in traffic • Parent info (letter and website) • Teacher's guide + website **TEST PILOTS** (Grades 4-5) (total of 4-10 lessons) • **Outdoor practical exercises** • **Teacher's guide + website** **BICYCLE TRIALS** (Grades 4-6) (total of 2 lessons) • Practical exercises on track (box with supporting material ordered from the municipality) • Teacher's guide **MINI HELMET** (Grades 4-6) (1 lesson) • Bicycle helmet experiment with an egg • Teacher's guide + website **BICYCLE HELMET CAMPAIGN** (Grades 4-6) • Music video **OVERVIEW OF MATERIAL** (traffic safety teachers and other teachers) **MUNICIPALITY, TEACHERS / SOCIAL EDUCATORS, POLICE, ETC:** • Network meetings, traffic courses, counseling / support, teaching, outreach efforts, fairs, advertising, etc. **STRUCTURAL CHANGES:** • Legislation, national goals for Grades 3, 6 and 9, booklet / common goals, traffic policy	**KNOWLEDGE BY END OF YEAR 6** (Pupils) • Knows traffic rules for cyclists * > Knows how to look behind before turning / before stopping / before positioning > Knows how to give signals for turns / to turn in time > Knows how to give signals before stopping / to stop in time > Knows when to hold back when giving way / to fellow drivers / to oncoming drivers / to pedestrians > Knows how to position oneself before a turn / that you cycle on the cycle path (when there is one) and not on the pavement or in the pedestrian area > Knows that you do not cross a red / amber light and that you must follow traffic signs • Has knowledge of characteristics of safe routes for cyclists * • Knows traffic distractions * • Knows risks associated with other types of road users * • Knows own limitations and own abilities in traffic **ATTITUDE** (Pupils) • Believes it is important to comply with traffic rules / behaves safely in traffic • Experiences our materials as relevant, exciting and engaging **PARENTS** (Adapted to Age) • More parents understand that they are role models for their children (good / bad traffic habits) • More traffic trainers with their children in traffic • More people take responsibility / discuss the use of bicycle helmets **OUTPUT** • More self-transporting children • After Grade 6: More pupils have passed the cycling test • More school children use 'pang' coloured clothing/items • More school children wear bicycle helmets **SAFE TRAFFIC CONDITIONS AROUND SCHOOLS**

(* = national goals for traffic safety and mobility education)

	IN THE LONG TERM
SKILLS/COMPETENCES/BEHAVIOUR BY END OF GRADE 6 (PUPILS) **By bike** • Rides only in traffic according to the traffic rules * > Looks behind before turning / before stopping / before positioning > Signals turn / turns in time > Signals stop / stops in time > Holds back when giving way / for fellow passengers / for oncoming drivers / for pedestrians > Positions correctly before turning / rides their bicycle on the cycle path (when there is one) and not on the pavement or in the pedestrian area > Does not cross a red light > Follows the traffic signs • Wears a bicycle helmet (and correctly) when cycling • Chooses a safe route for cyclists * • Puts into practice safe cyclist behaviour (does not ride without hands on the handlebars, wears a helmet, is alert, etc) • Positions oneself correctly in traffic • Looks around to be aware of all traffic • Gives hand signals • Has balance on the bike during start-up, stops and avoidance situations • Can handle unexpected situations on a bicycle **In traffic in general** • Is attentive in traffic * • Predicts situations in traffic and adapts to them * • Has the tools to say no to risky behaviour in traffic • Stands by having non-risky behaviour in traffic	**EQUIP PUPILS, SO THAT WHEN THEY LEAVE SCHOOL THEY ARE PREPARED FOR THE 10 MOST DANGEROUS YEARS IN TRAFFIC** **FEWER TRAFFIC COLLISIONS** **REDUCE THE NUMBER OF TRAFFIC COLLISIONS** **FEWER ROAD DEATHS** (number and loss of living years) **FEWER INJURED** (lightly and seriously)
PARENTS (BY END OF GRADE 6) • Knows what their child should be able to do in traffic when the child leaves Grade 6 • Knows what their role is • Feels safe with their children in traffic	
STRENGTHENED COOPERATION WITH SCHOOLS, MUNICIPALITIES AND POLICE	

THEORY OF CHANGE: SCHOOLS – 13 TO 15 YEAR OLDS

RES	TARGET GROUPS	ACTIVITIES	OUTCOMES/RESULTS/EFFECTS
X WORK HOURS X DANISH KRONEN	**13 TO 15 YEAR OLDS** (GRADES 7-9/10) **TEACHERS** **TRAFFIC SAFETY TEACHERS** **(social educators in school-based leisure time facilities)** **SCHOOL MANAGEMENT AND BOARD** (contact parents) **PARENTS** **MUNICIPALITY** (School department as well as Technical & Environmental department in municipalities) **POLICE** **OTHER COOPERATING PARTNERS:** • School and parents • Centre for Teaching Material	**SCHOOL CAMPAIGNS** **NUMBER CRUSHER** (Grades 7-8) (total of 6-12 lessons) • Website for pupils + worksheet • Teacher's guide + website **"360 Degrees"** (Grades 8-10) (total of 2 lessons) • Interactive documentary - 24 small movie clips • Task sheet • Teacher's guide + website **"While We Live"** (Grades 8-10) (total of 5-9 lessons) • Movie • Task sheet **"Road Safety LIVE"** (Grades 8-10) (2-3 lessons) • Presentation by LIVE Ambassador **(DIGITAL) TEACHER SUBSTITUTE** (Previously "To Go") (2 lessons) • For when the teacher is ill or absent • A young instructor teaches digital or in class using the "360 Degrees" teaching material **OVERVIEW OF MATERIAL** (traffic safety teachers and other teachers) **MUNICIPALITY, TEACHERS / SOCIAL EDUCATORS, POLICE, ETC:** • Network meetings, traffic courses, counseling / support, teaching, outreach efforts, fairs, advertising, etc. **STRUCTURAL CHANGES:** • Legislation, national goals for Grades 3, 6 and 9, booklet / common goals, traffic policy	**PUPILS BY END OF GRADE 9** **KNOWLEDGE** • Has knowledge of the traffic rules for interaction with other road users * • Knows risk factors in traffic * / knowledge of at least 2 collision/injury factors • Knowledge of responsibility in traffic * • Knowledge/understanding of the consequences of one's own and others' behaviour in traffic • Knows own limitations and own abilities in traffic • Knows possible consequences of risky behaviour in traffic * • Knows they are facing the 10 most dangerous years in traffic in their entire life **RELEVANCE AND REFLECTION** • Can relate the topic to one's own life • Reflection on what can prevent traffic collisions • Reflection on own behaviour in traffic • Takes a position on one's own future behaviour in traffic • Takes a decision on how they will react to others' risk behaviour **PARENTS** (Adapted to Age) • More parents understand that they are role models for their children (good/bad traffic habits) • More parents take responsibility/ discuss the use of cycle helmets and make agreements on safe behaviour + preferably a common front from parents' side • More parents ensure that their children's bicycles and equipment are in order **OUTPUT** • More self-transporting children • By the end of Grade 9: More pupils have been taught with the "360 degrees" teaching material and/or have had "Road Safety LIVE" visits **SAFE TRAFFIC CONDITIONS AROUND SCHOOLS**

(* = national goals for traffic safety and mobility education)

IN THE LONG TERM

PUPILS BY END OF GRADE 9

ATTITUDE

- Says no to drink driving, always wears safety equipment/helmet, is not distracted, does not speed
- Believes it is important to comply with traffic rules/ behave safely in traffic
- Experiences our materials as relevant, exciting and engaging

SKILLS/COMPETENCES/BEHAVIOUR

- Travels in traffic according to traffic rules and taking into account fellow road users *
- Travels responsibly in traffic *
- Can assess possible consequences of risky behaviour in traffic *
- Can reduce own and others' risk of injury in traffic *
- Has the tools to say no to risky behaviour in traffic/ Can say no: Does not drive after consuming alcohol, does not speed, does not drive with 2 persons on mopeds, etc.
- Stands by non-risky behaviour in traffic
- Takes action against others' risky behaviour
- Makes agreements with parents about helmets, how to get home from a party, drives legally on a moped, etc

PARENTS (BY END OF GRADE 9)

- Knows what their child should be able to do in traffic when the child leaves Grade 9
- Knows what their role is
- Feels safe with their children moving in traffic

STRENGTHENED COOPERATION WITH SCHOOLS, MUNICIPALITIES AND POLICE

EQUIP PUPILS, SO THAT WHEN THEY LEAVE SCHOOL THEY ARE PREPARED FOR THE 10 MOST DANGEROUS YEARS IN TRAFFIC

FEWER TRAFFIC COLLISIONS

REDUCE THE NUMBER OF TRAFFIC COLLISIONS

FEWER ROAD DEATHS
(number and loss of living years)

FEWER INJURED
(lightly and seriously)

03 3 EXAMPLE 3: THE PROBLEM ANALYSIS AND NEEDS ASSESSMENT FOR THE CHILDREN'S TRAFFIC CLUB

Related Steps	1 The Activity Level: The Problem Analysis and Needs Assessment for the Specific Activity
Age groups	3 to 9 year olds

This example shows the Norwegian Council for Road Safety's analysis before developing its Children's Traffic Club, which is for kindergartens and the early years in school (3 to 9 year old children). In this example we focus on adults as a target group.

1 ANALYSE

Analyse how the problem manifests itself. What are the target group's conditions and needs? Link the problem area to your strategic plan and identify the factors that contribute to unsafe behaviour.

The Children's Traffic Club ("Barnas trafikklubb") is considered in the context of the needs of society and families for traffic safety. Children have a right to grow up safely, and traffic safety should be an important and natural part of their everyday life. Traffic safety for children is the adult's responsibility and involves physical arrangements, the use of safety equipment, education and training, guidance and support. Children must gradually be given more and more responsibility for themselves and their safety. If children establish good habits when they are small, it is likely that they will become responsible road-users.

Children are road-users every day, as passengers, as pedestrians and, as they grow older, as cyclists. The most important learning is practical through their own experiences. Adults are important role models in this regard. The choice of everyday transport to the day-care centre, school, work and leisure-time activities affects the child's traffic education.

A major effort to reduce traffic collisions involving children has produced good results, and the picture is fortunately completely different than it was in the 1960s and 70s. The goal is to maintain this positive trend, which the Norwegian Council for Road Safety considers to be best achieved by long-term preventive measures. New generations therefore require a continuous effort in this area. The traffic environment is constantly changing, and education and training are the best basis for creating responsible road-users, a premise in the vision of zero road deaths. Many families with children are concerned about traffic safety, but not all of them. The Norwegian Council for Road Safety therefore wants to help ensure that traffic is included in a natural way in the implementation of activities scheduled throughout the year in day-care centres and schools.

They believe that most people have good intentions about safeguarding the best interests of children, but in busy everyday life, traffic safety can be forgotten in favour of other areas in which people have to engage. Many adults may find it unpleasant to be confronted with attitudes and careless behaviour with regard to obeying traffic rules. Hence, in this project the Norwegian Council for Road Safety focuses on knowledge and norms, and plays an active role in presenting knowledge about the use of safety equipment, especially correct protection of children in cars and the use of reflectors.

Since the club started in 1966, living conditions of families with small children have changed, and nowadays most children attend a day-care centre. Therefore, the Norwegian Council for Road Safety wants to give both kindergartens and schools the possibility to work with activities, films, materials and ideas from the club.

The main target group is teachers and day-care centre staff, as they are the ones who draw up the annual plan. Parents play the most important role in the children's development and upbringing, and this is also true with regard to traffic safety. They can be given information directly on the internet and social media, and the educational supervisor receives material concerning parental cooperation, written reports, tips and advice, and knowledge about safeguarding children in cars, etc.

Children are obviously also a target group. The Children's Traffic Club was created in order to ensure that children stay safe in traffic, in this case through an adult taking responsibility. The youngest children should not be allowed to move about alone in mixed traffic, but we will talk about what is safe and what is dangerous in traffic. When the Norwegian Council for Road Safety developed the content, they used the 5E model to be sure that the children themselves are engaged and get the opportunity to explore, explain, elaborate and evaluate in their own learning process.[56]

[56] For more information on the Children's Traffic Club, visit: http://bit.ly/33GNn1D

04

4 EXAMPLE 4: OBJECTIVES AND OUTPUT OBJECTIVES FROM THE "ROAD SAFETY LIVE" INITIATIVE

Related Steps

2 **Formulating Outcomes and Objectives**

Age groups

13 to 16 year olds

This example shows the different types of objectives the Danish Road Safety Council set for their "Road Safety LIVE" initiative aimed at pupils in Grades 8 to 10 (13 to 16 year olds).

2 DEFINE OBJECTIVES

Specify the objectives for the activity. Take a first look at the test and evaluation designs and a glance at the costs.

In Denmark – as in many other European countries – schools with pupils in Grades 8 to 10 (13 to 16 years old) can request, free-of-charge, to have a visit by persons who have been involved in severe traffic collisions. In the "Sikker Trafik LIVE" ("Road Safety LIVE") initiative, these persons are called "ambassadors" and their role is to tell pupils about their own collisions. Common to these ambassadors is that they have all been seriously injured in a collision, and that they themselves were (partly) to blame for the collision and injuries.

The purpose of the LIVE visits is to provide pupils with more insight into, and a better understanding of, the consequences of a traffic collision, and to focus attention on the choices pupils make in traffic. The aim is to motivate pupils to make safer choices, and to provide them with competences that enable them to take care of themselves and to take action when confronted with risky behaviour of people around them.

Several operational objectives were set for the LIVE initiative, as also set out in the theory of change one-pager (see example 8). The *knowledge objective* focused on what change in knowledge the LIVE initiative should achieve: a minimum of 85% of the pupils who had a visit by the LIVE initiative should know what age group is most vulnerable/exposed in traffic.

The *attitude objective* focused on the reception of the LIVE initiative by pupils, and set a target that at least 95% of the pupils who had a visit by the LIVE initiative should feel that the visit was good or very good.

The LIVE initiative also set an *output objective* for the reach per school year: a minimum of 25,000 pupils in Grades 8, 9 and 10 (equal to approximately 19% of the target population) should receive a visit from the LIVE initiative in every school year. The results of the objectives together with the achieved reach would be used as metrics to report to the foundation supporting the implementation of the LIVE initiative.

In addition, the Danish Road Safety Council also monitored a behavioural objective, which was measured via a survey 6 to 12 months following the LIVE visit. The behavioural objective focused on self-reported behaviour, and set a target that 80% of the pupils that had participated in a LIVE visit had gone on to take better care of themselves in traffic as a result.

The Danish Road Safety Council also evaluated the knowledge objective via the survey held 6 to 12 months following the LIVE visit, and set a target that 80% of the pupils should still know that they belong to the age group that is most vulnerable in traffic.

The Danish Road Safety Council contracted professional researchers to evaluate, using randomised controlled trials (RCTs), whether the "Road Safety LIVE" initiative was effective. More information on how the researchers determined that the activity is effective can be found in example 24. In addition to the RCT study, the Danish Road Safety Council also continuously conducts post-activity measurements in order to evaluate whether the formulated outcomes and outputs have been achieved. The evaluation methods they use for these post-activity measurements and their results can be found in example 25, whereas the surveys used for the post-activity measurements can be found in example 26.

Source: Danish Road Safety Council

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5 EXAMPLE 5: OBJECTIVES AND OUTPUT OBJECTIVES FROM THE PEDESTRIAN AND CYCLIST TESTS IN FLANDERS

Related Steps	2 Formulating Outcomes and Objectives
Age groups	10 and 12 year olds

This example shows the different types of objectives for the pedestrian and cyclist tests organised by the Flemish Foundation for Traffic Knowledge (VSV) in Flanders. These initiatives are aimed at pupils aged 10 years for the pedestrian test and 12 for the cycling test.

2 DEFINE OBJECTIVES

Specify the objectives for the activity. Take a first look at the test and evaluation designs and a glance at the costs.

In the Flemish education system, the government imposes attainment levels and development goals that broadly express what pupils need to know and be able to do when completing a certain year. Attainment levels are minimum objectives that the government deems necessary and attainable for a particular group of pupils. These are related to the knowledge, insight and skills that all pupils of the group need to acquire during the learning process, and the attitudes that the school should strive for among the pupils. Schools are free to determine the content of the lessons and the teaching methods to reach the attainment levels.

The attainment levels for traffic safety and mobility education at the completion of primary school are the following:

Pupils must

1. be able to locate dangerous traffic situations in the wider school environment
2. have sufficient responsiveness, balance, and sense of coordination, and know the traffic rules for cyclists and pedestrians, to be able to move independently and safely along a familiar route
3. show a willingness to consider other road users in their behaviour
4. know the main consequences of growing car use and be able to compare the advantages and disadvantages of possible alternatives
5. be able to plan a simple route by public transport.

To support schools in their task, the Flemish Foundation for Traffic Knowledge (VSV) has developed a complete set of tools based on the attainment levels for pedestrians and cyclists, including a teaching method with "traffic certificates" for each year and two tests: the Grand Pedestrian Test and the Grand Cycling Test. For each phase in the learning process, VSV has defined operational objectives related to the knowledge, skills and attitudes that pupils must have at the end of that particular phase.

The Grand Pedestrian Test

The Grand Pedestrian Test is the final stage of pedestrian education in primary schools. It takes place at the end of Grade 4 (pupils aged 10). The test assesses whether pupils can walk safely and independently in traffic in their own residential environment. The operational objectives are the specific skills needed to pass the test:

- recognise dangerous situations and respond safely to them
- choose a safe part of the road to walk on if there is no footpath
- walk left on the roadway if there is no footpath, hard shoulder, or cycle path
- walk on the roadway to avoid an obstacle that completely blocks the footpath
- cross the road
  - on a zebra crossing without a traffic supervisor
  - on a zebra crossing with an authorised traffic supervisor
  - between parked cars
  - at a bend
  - at an intersection without a zebra crossing
  - at an intersection with traffic lights
  - at an intersection with a traffic officer
- cross at a level crossing.

The Grand Cycling Test

The Grand Cycling Test is the final stage of cycling education in primary schools. It takes place at the end of Grade 6 (pupils aged 12), and assesses whether pupils can cycle safely and independently in traffic in their own residential environment. As with the pedestrian test, the operational objectives are the specific skills that pupils need to master:

- look over the shoulder while staying on course
- extend the arm to signal a manoeuvre or change of direction
- turn right
- turn left
- cycle past an obstacle
- take into account pedestrians on a zebra crossing
- take into account passengers getting out of a car
- take into account oncoming traffic and traffic approaching from the rear
- cycle to a zebra crossing, dismount and cross on foot
- use a cycle path where available
- cycle on the correct side of the roadway if there is no cycle path
- give way where required.

Flemish primary schools have about 70,000 pupils in each grade. Based on that number, VSV has defined output objectives for both tests: per school year, at least 25,000 pupils should take the Grand Pedestrian Test, and another 25,000 should take the Grand Cycling Test. This corresponds to 35% of all pupils in those particular grades.

06 6 EXAMPLE 6: ACHIEVING CHANGE THROUGH A WORKSHOP ON SPEED

Related Steps

2 **Formulating Outcomes and Objectives**

3 **Achieving Change**

Age groups

16 to 17 year olds

This example shows how the Austrian Road Safety Board (KFV) applied a theoretical model of behaviour to their problem analysis and needs assessment, and formulated their objectives accordingly.

2 DEFINE OBJECTIVES

Specify the objectives for the activity. Take a first look at the test and evaluation designs and a glance at the costs.

3 ACHIEVING CHANGE

By now you have decided whether the activity's outcome is related to actual behaviour or intentions to engage in the behaviour, and whether the outcome will be knowledge, skills, attitudes or (intended) behaviour. Define what you seek to modify and how you will modify it.

Psychological theories aim at explaining the relationship between attitudes and behaviour. A theory-based approach not only makes it possible to provide information about whether a workshop or an intervention programme works, but also how and why it succeeded, or did not.

Therefore, when the Austrian Road Safety Board (KFV) designed its workshop "Geschwindigkeit: Risiko?" ("Speed: A Risk?"), a suitable theoretical model of behaviour for the workshop sequences were considered in advance, along with its contents and methods, as well as the evaluation process. In a nutshell, the following steps were taken.

A literature and study analysis provided information on the target group. Input on specific needs and the state of development to be considered could thereby be identified. This information in turn supported the selection of a suitable behavioural model.

In the case of KFV's workshop it was decided to apply the Information-Motivation-Behavioural skills (IMB) model by Fisher and Fisher.[57] This model was originally developed for AIDS prevention and consists of three components, which are essential for initiating and maintaining safe behaviour in general:

1. **information** on risk reduction;
2. **motivation** to act in a risk reducing manner; and
3. **behavioural skills** for risk reduction.

All three components are interrelated, and each of them is related to safe behaviour.

For the workshop, the three components and the outcome behaviour of the IMB model represented the main objectives: the workshop should create more knowledge about speeding and the corresponding risks (information), should motivate the participants to choose a safe driving speed or tell their friends to do so (motivation), and should enable them to wrap up their message in a manner that is acceptable to their friends (behavioural skills).

Regarding information, the main objective focused on gaining knowledge about the relationship between speed and risk in road traffic, e.g. knowledge on collision and injury risk. The motivation component aimed at recognising risky behaviour and the intention to change it, e.g. taking another perspective and looking into social norms. Concerning behavioural skills, the main objective focused on reducing risky speeding behaviour, e.g. learn to resist peer pressure.

Having a behavioural model underlying the workshop gave the opportunity to evaluate not only the process, but also the effectiveness of its contents. The evaluation of the workshop (a before-and-after design was used with a further survey after three months) allowed a verification of all workshop parts and an improvement of specific workshop contents or methods. The IMB model proved to be a suitable theoretical basis for the workshop. The content and method with regard to the three components (information, motivation and behavioural skills) supported the participants in addressing speed choices.

[57] Fisher & Fisher (1992), A general social psychological model for changing AIDS risk behavior. In: Pryor & G. Reeder (Edr). The social psychology of HIV infection. Hillsdale NJ: Erlbaum.

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7 EXAMPLE 7: A THEORY OF CHANGE ONE-PAGER FOR THE NEW CYCLING TEST

Related Steps	3 3.2 – A Template for Your Theory of Change
Age groups	12 to 13 year olds

This example shows the theory of change one-pager that the Danish Road Safety Council used when updating its cycling test activity for Grades 5 and 6.

3 ACHIEVING CHANGE

By now you have decided whether the activity's outcome is related to actual behaviour or intentions to engage in the behaviour, and whether the outcome will be knowledge, skills, attitudes or (intended) behaviour. Define what you seek to modify and how you will modify it.

The figure on the next page shows the theory of change one-pager that the Danish Road Safety Council prepared for the update of its cycling test activity (see example 12 for more information).

Please note that, contrary to the explanation in Step 3.2, the asterisks (*) are used to indicate the national goals for traffic safety and mobility education, and not the key performance indicators.

THEORY OF CHANGE: NEW CYCLING TEST (* = national goals for traffic safety and mobility education)

RES	TARGET GROUPS	ACTIVITIES	OUTCOMES/RESULTS/EFFECTS		IN THE LONG TERM
X WORK HOURS X DANISH KRONEN	**PRIMARY: CYCLING TEST PUPILS** (12 and 13 year olds; Grades 5&6)  **TEACHERS** **TRAFFIC SAFETY TEACHERS** **POLICE** **MUNICIPALITY** (School department as well as Technical & Environmental department in municipalities) **PARENTS**	**CYCLING TESTS** (Grades 5&6) (total of 8-10 lessons) **THEORY:** • Theory test • Theory lessons (blackboard and group work) • Bicycle check **PRACTICAL:** • Poss. training in traffic with parents • Practical test • Learning through observation and control of other pupils • Review of class results • Teacher's guide & website **PARENT INFORMATION (LETTER)**	**KNOWLEDGE AFTER GRADE 6** (Pupils) • Insights into own knowledge of rules and safe behaviour on a bicycle + knowledge of where the class lacks knowledge (theory test) • Knows traffic rules for cyclists:* > Knows how to look backwards before turning/ before stopping/before positioning > Knows how to give signs to turn/ to turn in time/to stop/to stop in time > Knows how to hold back when obliged to give way/ for fellow road users/ for oncoming road users/for pedestrians > Knows how to position before the turn/ that you cycle on the cycle path/ not on the pavement/not in the pedestrian area > Knows that you do not ride through a red light/amber light and that you must follow the instructions on the signs • Knows distractions in traffic* • Knows risks associated with other types of road users* • Knowledge of why it is important to use safety equipment for bicycles (brakes, lights, reflectors, bell) and oneself (helmet/airbag/ 'pang' coloured clothing/items) and how to use it • Discussion on own limitations and abilities in traffic (based on the practical test) • (Has knowledge of characteristics of safe routes for cyclists*) **ATTITUDE:** • Believes it is important to comply with traffic rules / behaves safely in traffic • Perceives the cycling test as relevant, exciting and engaging.	**SKILLS/COMPETENCES/BEHAVIOUR AFTER GRADE 6** (Pupils) • Can check if a bicycle is legal (bicycle check) • Can check if others' bikes are correct in traffic (checking other pupils) **By bicycle:** • Rides only in traffic according to the traffic rules:* > Looks backwards before turning/before stopping/before positioning > Indicates turn/turns in time/stops/stops in time > Holds back when obliged to give way/for fellow road users/for oncoming road users/for pedestrians > Positions correctly before turning/rides on the cycle path if there is one/does not ride on the pavement/does not ride in the pedestrian area. > Does not ride through a red light > Follows signs' instructions • Uses safety equipment on bicycle and themselves (including helmet) when cycling • (Chooses a safe route for cycling*) **TEACHERS WHO IMPLEMENT THE CYCLING TEST:** • Uses both theory and practical material • Likes the new design of the cycling test • Considers the material relevant in terms of teaching pupils to ride safely in traffic **OUTPUT** • More self-transporting children • More pupils after Grade 6 have completed the cycling test • More users of helmets	**EQUIP PUPILS, SO THAT WHEN THEY LEAVE SCHOOL THEY ARE PREPARED FOR THE 10 MOST DANGEROUS YEARS IN TRAFFIC** **FEWER TRAFFIC COLLISIONS** **FEWER ROAD DEATHS** (number and loss of living years) **FEWER INJURED** (lightly and seriously)

8 EXAMPLE 8: A THEORY OF CHANGE ONE-PAGER FOR THE "ROAD SAFETY LIVE" INITIATIVE

Related Steps	3 3.2 – A Template for Your Theory of Change
Age groups	13 to 16 year olds

This example shows the theory of change one-pager that the Danish Road Safety Council prepared for its "Road Safety LIVE" initiative.

3 ACHIEVING CHANGE

By now you have decided whether the activity's outcome is related to actual behaviour or intentions to engage in the behaviour, and whether the outcome will be knowledge, skills, attitudes or (intended) behaviour. Define what you seek to modify and how you will modify it.

The figure on the next page shows the theory of change one-pager that the Danish Road Safety Council prepared for the "Road Safety LIVE" initiative, as introduced in example 4.

THEORY OF CHANGE: "ROAD SAFETY LIVE" (* = key performance indicators)

RES	TARGET GROUPS	ACTIVITIES	OUTCOMES/RESULTS/EFFECTS		IN THE LONG TERM
X WORK HOURS X DANISH KRONEN	**GRADES 8-10** (13 to 16 year old pupils)	**SCHOOL VISIT BY LIVE AMBASSADOR** • Injured person/ LIVE ambassador tells his/her story to the pupils (90-120 min.) • Teacher's guide and preparation sheets for pupils **OUTPUT** **AT LEAST 25,000 PUPILS FROM GRADES 8-10** (Including visits for at least 30% of the pupils in Grades 8 to 10 in the country's 5 most collision-affected municipalities in the school year, corresponding to a total of approx. 1700 pupils)	**KNOWLEDGE - PUPILS** • Knowledge of at least 2 collision/injury factors (speed, alcohol, seat belt, inattention) • Knowledge of collision/injury factors for young people (incl. mopeds) **KNOWLEDGE - PUPILS** • Knows that they themselves are part of the most vulnerable age group in traffic* • Knowledge/understanding of the consequences of their own and others' behaviour in traffic • Knowledge of how to say no to others (action instructions) **RELEVANCE - PUPILS** • Can relate the story to their own life **REFLECTION - PUPILS** • Reflect on what could have prevented the collision the injured person was in • Reflect on own abilities and behaviour in traffic • Decide on own future behaviour in traffic **ATTITUDE - PUPILS** • Thinks the visit was good / very good * • Drink driving is unacceptable • Not always wearing a seat belt/helmet is unacceptable • Being inattentive/ distracted in traffic is unacceptable • Speeding is unacceptable	**INTENDED BEHAVIOUR - PUPILS** • Will talk to friends/family about the visit **INTENDED BEHAVIOUR - PUPILS** • Decides how they will react to others' risk behaviour **BEHAVIOUR - PUPILS** **Less risky driving:** • Reduces their speed/adheres to the speed limit • Does not drive under the influence of alcohol or drugs • Uses the seat belt • Pays attention in traffic • Wears a helmet (moped and motorcycle) **6 to 12 months after the visit:** • Believes that the LIVE visit has helped them to take better care of themselves in traffic *	**REDUCE THE NUMBER OF TRAFFIC COLLISIONS** **FEWER ROAD DEATHS** (number and loss of living years) **FEWER INJURED** (lightly and seriously)

09 EXAMPLE 9: APPLYING THE 5E MODEL WHEN DESIGNING A (DIGITAL) LEARNING RESOURCE

Related Steps	4 Design
Age groups	14 to 17 year olds

This example shows how the 5E model was applied when "Underveis", a digital learning resource for secondary schools, was designed by the Norwegian Council for Road Safety.

4 DESIGN

Based on the previous steps and taking into account the 5E model (engage, explore, explain, elaborate and evaluate), design your activity. Finalise the evaluation plan, specify what will be evaluated, and determine the design and method of the evaluation. Make a plan for production and implementation.

"Underveis" (meaning "along" or "underway") is a learning resource for secondary schools in Norway, referring to the fact that youngsters are 'on the way' to growing up as road users. It used to be a printed magazine, but as of 2020, the content is digitised, providing more space to convert successful strategies and teaching methods from the physical classroom to the digital environment. Underveis 2021 includes four chapters, with 27 complete topics including formative and reflective assessments.[58]

The reflective assessments were designed with the end in mind, and therefore the goals were set before the instructional methods were chosen. The goals embody the knowledge and skills the Norwegian Council for Road Safety wants the pupils to have learned when they complete each topic.

Underveis includes films, tests, quizzes, information and a "crash calculator". One of the themes covers seat belts and collisions, and focusses on how much of an impact one's body can resist. It is primarily linked to science and mathematics, but teachers can also link the activity to social science, physical education, ethics, Norwegian and English.

Engage

When developing Underveis, the Norwegian Council for Road Safety took into account the importance of the flexible use of the 5E model. All the phases should be considered at the same time, with the focus moving back and forth between them. The learning objectives must be clear, and evaluation is part of the learning process throughout.

Motivation, curiosity and interest were stimulated in different ways. The main question was: How can we meet the youngsters' emotional needs and at the same time build the activity on scientific knowledge? The pupils should see the link between what they need and what they are learning. The process therefore starts with a film[59], with a subtitle that says: "To crash at 50 km/h without a seat belt is comparable to falling 10 metres. To crash at 90 km/h without a seat belt corresponds to a drop in height of 32 metres." The film thereby provides

[58] For an overview of classroom assessments, see: https://bit.ly/3rlsJjw
[59] The video is available on YouTube: https://bit.ly/2NPaTHS

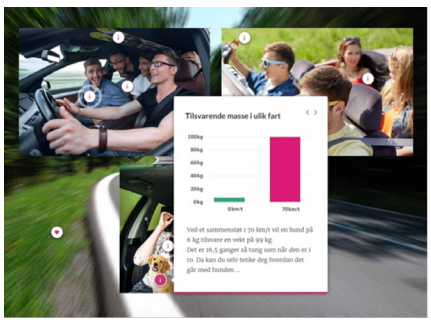
the pupils with a common educational starting point.

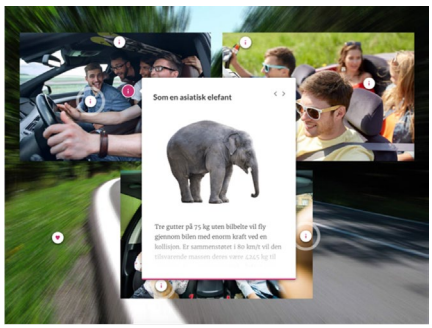
To get the pupils engaged, the film was intended to be followed by some open questions for reflection. However, pre-tests showed that while girls responded well, boys did not. Based on this experience, the introduction was changed to simple written tasks containing a number of relevant questions for the pupils to answer. These tasks help to identify prior knowledge and attitudes and focus on the learning objectives. This example on how to engage also shows how evaluation was used in every step of the 5E model.

Explore

There are several activities that were designed to motivate the pupils to explore the topic. At every stage, they investigate, make their own decisions, gather information and ask questions. The tasks start with doing things, not just talking. One example can be seen in this picture where pupils are supposed to find the mistakes regarding the use of safety equipment.

After the pupils' discussion, they go to the next picture which provides explanations.[60]





[60] The activity can be found on this website: https://bit.ly/3tNvQCg

Explain

Through the digital learning process, Underveis shows the pupils how they can communicate their knowledge. For instance, after the pupils have explained what they discovered in these pictures, the teacher challenges their understanding of concepts and gives new examples to explain why it is so important to use safety equipment in the right way, or to load luggage securely.

Elaborate

When it comes to elaboration, the process uses another element in the learning course – the calculator – and looks at the forces at play in collisions.

When the pupils are exposed to the calculator, they are guided by a known example they have previously encountered – mobile phones used at different speeds at the time of a collision – before they can try with other objects. By entering the speed in km/h and the object's weight into the calculator, they can see for themselves with what force the object would hit their bodies with. The link between reality and theory has been made.

10 EXAMPLE 10: EXPANSIVE THEMES

Related Steps

4 Design

Age groups

Different age groups

This example shows how expansive themes are used across Europe to incorporate traffic safety and mobility education in other subjects or programmes.

4 EXPANSIVE THEMES

Schools could be reluctant to deliver a specific programme on traffic safety and mobility education, but may be more willing if such material was presented in the context of another theme. You may therefore want to consider them when designing and developing your activity.

The Netherlands – The School for Health programme

A Dutch programme uses the 'School for Health' approach to encourage primary schools, secondary schools, and VET (Vocational Education and Training) schools to take action by working on healthy lifestyles at school.[61] This means that schools can tackle one or more health themes in an integrated way:

- nutrition
- exercise and sport
- preventing smoking, alcohol use and drug use
- well-being, relationships and sexuality
- hygiene, skin and teeth
- indoor environment, natural environment and physical safety
- media literacy
- hearing loss

Road safety has its place in 'physical safety'. In this example, including lessons on road safety as a topic within the wider expansive theme of health is an 'entry' to implement such lessons in schools.

Denmark – "While We Live"

The award-winning film "While We Live", telling the story of a tragic traffic collision involving young people, was accompanied by teaching material and a teacher's guide that, amongst others, included five themes that teachers could choose from to give the road safety lesson: "Say no", "Choices", "Shame", "Forgiveness", and "Youth Life". The lessons can therefore be incorporated into and used for teaching different subjects, such as maths, Danish, social sciences, traffic safety, and religious education. More information on the pre-testing of the educational material[62] and the teacher's guide[63] accompanying the film, which was done under time pressure, can be found in example 14.

[61] RIVM (n.d.), Healthy school. https://bit.ly/3x9GFRJ
[62] "While We Live" teaching material is available in Danish here: http://bit.ly/3u61Rqc
[63] "While We Live" teacher's guide can be found here: https://bit.ly/3arvtH0

Spain – "Planet SDGs"

"Planeta ODS" ("Planet SDGs") is an educational programme from Fundación MAPFRE in which children and young people learn to prevent risks and which promotes safe, healthy and sustainable mobility in relation to the UN Sustainable Development Goals (SDGs).[64] Through online workshops for schools, it aims to make pupils aware of the importance of road safety by linking it to the Sustainable Development Goals as a model for responsible behaviour.

The "Planeta ODS" activity is divided into two main parts: *My Safe World*, which deals with risk prevention at home, and 3S Mobility on safe, healthy and sustainable mobility ("Segura, Sana y Sostenible"). These two parts are made up of digital workshops and are supported by novel and innovative resources, including:

- *The Virtual Injury Prevention City.*[65] An interactive platform in which one moves around a house and its surroundings, discovering the different risks that can be encountered, while at the same time receiving tips on the best ways to protect oneself.

- Guided videos and mini games, in which interaction with the pupils is central, covering the use of personal mobility vehicles as well as safe, healthy and sustainable mobility.[66]

[64] More information on "Planet SDGs" can be found on its website: https://bit.ly/3sjUE3P
[65] The Virtual Injury Prevention City can be visited at: https://bit.ly/3yWIyCj
[66] The video on how to use a personal mobility vehicle can be watched here: https://bit.ly/2STSGei

The Netherlands – S.U.I.T. (Stand Up In Traffic)

S.U.I.T. is an educational activity that focuses on the theme of resilience to discuss traffic safety and mobility with pupils in the first year of secondary education.[67] The S.U.I.T. project consists of three lessons: resilience & peer pressure, resilience & self-confidence, and resilience & leaving the group.

The lesson on resilience & peer pressure aims, among other things, to teach pupils to recognise and deal with peer pressure, and how to say 'no'. This is done using the theme of 'visibility in traffic', in which the risks of having poor or no lights and not using reflective equipment as both cyclist and pedestrian are discussed.

The lesson on resilience & self-confidence aims to teach the pupils, among other things, to recognise their gut feelings and to trust their instinct and intuition when it comes to whether something is responsible or not, as well as knowing when to trust another person and when not. This is done using the theme of 'cycling without phone', in which the risks of distractions from mobile phone use in traffic are discussed.

The lesson on resilience & leaving the group aims to teach the pupils to make their own choices when it comes to behaviour and intended behaviour, to consciously leave a group, and to take responsibility for situations. This is done using the theme of 'blind spots', in which the risks of blind spots, notably those of heavy duty vehicles, are discussed.

The S.U.I.T. project received the maximum scores in all but one category when assessed by Dutch knowledge institute CROW using its Education Checklist (see Step 4).[68]

[67] Trafficskills (n.d.), S.U.I.T. Stand Up In Traffic. https://bit.ly/2OOqKa8
[68] CROW (2021), Beoordeling S.U.I.T. Stand Up In Traffic. https://bit.ly/3di9bZp

11 EXAMPLE 11: MAKING A PRE-TEST DESIGN

Related Steps	5 Pre-testing
Age groups	n/a

This example shows what considerations your pre-test design has to include.

5 PRE-TEST

Make a pre-test design and test your activity. Based on the results, make changes if needed. You may therefore have to go back to Step 2, 3 or 4.

When testing a new or existing activity (which has not previously been tested or which was tested a long time ago) you have to make a specific test design that matches the specific activity you want to test. The test design has to include considerations about at least the following:

What do you want to test?

Do you want to test how a specific activity is received and perceived by the pupils (do they learn what they should in terms of knowledge, reflection, attitude, intended behaviour, etc.)? And/or do you want to test how the teachers in charge of using the material receive and perceive the material?

Who is the target group? Who do you need to recruit for testing?

Is the target group for instance specific age groups/classes from different regions in your country, or classes from the regions/areas where most pupils are killed or injured in traffic? Or is it a combination of schools that teach specific age groups/classes in traffic safety and schools that do not? Or is the target group composed of teachers who teach a certain subject, or instead teachers who would use a new teacher´s guide for a certain activity? And, when you have defined who to recruit for testing, *how will you recruit them?* Will you do this by calling different schools? Or via a newsletter to schools and/or teachers? Or via social media, etc?

What methods will you use?

Will you use qualitative methods – for instance (participant) observation, interviews, and/or focus groups? Or quantitative methods – for instance surveys of pupils and teachers? Or will you use a mixture of qualitative and quantitative methods? And *when* will you do the interview or survey? Before a teaching setting, or after, or both?

What do you want to know?

Presumably you want to test if the activity is used as intended. That is, do the pupils learn what they should according to national goals, your theory of change one-pager, and what is intended with the activity in terms of learning, knowledge, attitude, competences, etc? It is relevant to use the 5E model here to see if and how the activity is being taught and perceived in terms of engaging, exploring, explaining, elaborating and evaluating.

What resources do you have?

In terms of finances and/or personnel to conduct the test. Do you have a short or longer time schedule? And will you provide remuneration (gift cards, etc) for the participants?

Who will do the testing?

Will it be an external party (e.g. consulting firm, research institute, etc), an in-house documentation unit (who are not in charge of the development of the activity, but only of testing, monitoring and evaluating it), or will the testing be conducted by the developers of the activity or colleagues of them? While the first two options are professionals and neutral, one should be aware that the latter option is not neutral and the people running the tests are unlikely to have the training to conduct testing. It is therefore recommended to ask the external party or the in-house documentation unit to conduct the testing. However, if this is not possible (for instance due to limited resources) it is much better that the developers of the activity do the testing than not have testing at all – as long as they aim to stay neutral and do not get discouraged by criticism of "their baby".

12 EXAMPLE 12: PRE-TESTING A NEW VERSION OF A CYCLING TEST

Related Steps	5 Pre-testing
Age groups	12 to 13 year olds

This example shows how the Danish Road Safety Council pre-tested their new version of the cycling test for Grades 5 and 6 in two stages.

5 PRE-TEST

Make a pre-test design and test your activity. Based on the results, make changes if needed. You may therefore have to go back to Step 2, 3 or 4.

Before a new version of the Danish Road Safety Council's bicycle test was pre-tested, the "old" cycling test had already been tested and evaluated in several ways, both quantitatively and qualitatively. These tests showed the need to upgrade the test. Consequently, a new test was developed, which included both in-class education (theory) and out-of-class education (practice) on roads near the school, including a 1.5-5 km route the pupils would have to ride.[69]

The new cycling test was designed to include the 5E model:

- Engage: the test includes activities that motivate and activate the pupils
- Explore: the pupils explore and collect information by themselves
- Explain: the test provides (theoretical) knowledge on safe cycling
- Elaborate: the acquired theoretical knowledge is used in practice
- Evaluate: the pupils evaluate their own performance and that of their classmates during the theoretical and practical test. Furthermore, their performance is evaluated and discussed with the teacher after both parts of the test.

The pre-testing of the new test was done in two stages:

Stage 1: Testing the concept

A qualitative method was used to test the concept, and included two focus groups: one in east Denmark, one in west Denmark. Each focus group consisted of 12 teachers, and therefore 24 teachers were involved in the test in total. The teachers represented different types of schools (based on a division between city and rural schools, and socio-economic characteristics). Half of the teachers had taught the old cycling test. All teachers received a gift card worth 50 Euro for participating.

Each focus group lasted three hours and was led by a moderator. The focus groups also included another person, who via a PowerPoint presentation showed the participants what had been developed so far and what was intended to be included in the new cycling test and

[69] See example 7 for the theory of change one-pager of the new cycling test.

its teacher´s guide. The participating teachers were asked different questions related to the topics listed below. Before the discussions started, the teachers had to individually fill out a paper with different questions related to the topics. This was done to avoid them being influenced by the others and to make them reflect on the new test and its teacher´s guide. The topics discussed during the focus groups included:

- What was considered important to include in the teacher´s guide, with regard to the description on how the teachers should teach the activity to the pupils. (The teacher's guide had not been developed at that time, nor had the information on the website with teacher´s pages and pupil´s pages);
- The theoretical part of the new test. This included the theoretical test itself, the PowerPoint presentation on theory that the teacher should use to teach, and the pupils' group work regarding the theory;
- The practical part of the new test. This included checking whether the bicycles are up to safety standards, pupils cycling the route in traffic, pupils and adults checking other pupils cycling the route, and the follow-up in the classroom.

Other issues discussed included whether the teachers expected pupils to attain the envisaged knowledge and experience as intended, whether the teachers would use the new test, and whether they would recommend it to others.

After the focus groups had been held, a report (in PowerPoint format) on the results was presented and changes to the concept of the new cycling test were made. Among the report's conclusions were that the teachers would use the new cycling test, and that they especially liked that the test had been updated with a new design, that it had been simplified, that it had a better connection between the theoretical and practical parts, that there was more focus on having the pupils reflect on their own and others' behaviour on bicycles, that it included more group work, and that it focused on cooperative learning practices.

Input received from the teachers included that they felt that the teacher's guide should also be easy to use for teachers who had not previously taught the (old version of the) cycling test, that the tests should be usable on different devices and formats (e.g. on PCs, tablets, Chromebooks, etc), that it should be clarified which national objectives/goals were being fulfilled, that the answers to the questions in the pupils' material should be included in the teacher's guide, that the pupils' pages should be easy to read and understand for participants who do not master Danish perfectly, and that participants should be able to write directly in the PDF files.

Stage 2: Testing a "mock-up/draft" of the teaching material, the website and teacher´s guide

The next stage was to test the new cycling test in practice to see how pupils and teachers received it.

A mix of quantitative and qualitative testing methods were used:

- Quantitative: Survey (mobile survey filled in via smartphones) for teachers regarding the *theoretical* in-class education, filled in by the teachers just after they had given the theoretical lesson;
- Quantitative: Survey (mobile survey) for teachers regarding the *practical* out-of-class education, answered by the teachers just after the practical lesson;

- Quantitative: Survey (mobile survey) for pupils regarding the *theoretical* in-class education, answered by the pupils just after they had been taught;
- Quantitative: Survey (mobile survey) for pupils regarding the *practical* out-of-class education, answered by the pupils just after the execution;
- Qualitative: Observations of the *theoretical* in-class education and the *practical* out-of-class education; and
- Qualitative: Short interviews with teachers and approximately 6-8 pupils from each class after they had finished the test.

Among the areas covered were knowledge and competences gained by the pupils in both the theoretical and practical parts (did they acquire the competences to cycle safely alone in traffic?), functionality, liking, relevance, reflection, intentional behaviour, etc. The analysis of the surveys and the interviews was conducted by documentation specialists. They also conducted the observations, but here the developers of the new test also participated to gain relevant insights. The 5E model's points mentioned previously were also evaluated via the observations, interviews and surveys.

This test was done at six different schools in Denmark, again representing different types of schools (based on geography, a division between city and rural schools, and socio-economic characteristics). Some schools had previously used the old cycling test, while others had not. The teachers each received a gift card worth 50 Euro for participating, while their pupils received an ice cream. The test took approximately five hours at each school.

After the test was conducted, a report (in PowerPoint format) on the results was presented, which concluded among other things:

- On the teacher's guide: it should have a simpler layout so it is easier for the teachers to get an overview and know what to do step-by-step for the preparation, the theory part, and the practical part (both the bicycle checks and the test). It should also provide background to the cycling test (Why is the new cycling test being introduced?, What are the national goals and key performance indicators?, etc).
- On the theoretical part: the introduction film and the theory test at the beginning both worked well; however the theoretical education was too long for the pupils and therefore required changes. The group work also required changes in order to function better.
- On the practical part: the teacher's guide should highlight how to start up and frame the day and what the pupils should do. The bicycle checks done by the pupils and supervised by one or more adults were found to be working well, and while the practical cycling test in traffic also worked, it could be improved by giving the adults a better introduction to their role.

Changes to new cycling test were made, and it was subsequently launched for all the schools in Denmark to use.[70] The use of the new test is monitored (as log-in to the website is required) and shows a high usage. The evaluation of the new test has been scheduled to take place approximately 1-1.5 years after the launch.

[70] The teacher's guide for the new cycling test can be found in Danish here: https://bit.ly/32nklWL

13 EXAMPLE 13: PRE-TESTING THE DIGITAL LEARNING ENVIRONMENT "FILLA & RILLA"

Related Steps	5 Pre-testing
Age groups	9 to 12 year olds

This example shows how the Finnish Road Safety Council (Liikenneturva) pre-tested a digital learning environment for 9 to 12 year olds, in three stages.

5 PRE-TEST

Make a pre-test design and test your activity. Based on the results, make changes if needed. You may therefore have to go back to Step 2, 3 or 4.

Filla & Rilla is a digital learning environment for cycling education in Finnish schools and is targeted at pupils in Grades 3 to 6 (9 to 12 year olds). The aim of pre-testing Filla & Rilla was to ensure its performance and usability. The goal was for teachers and pupils to find it easy to use and for it to motivate pupils to learn about safe cycling. There were three different stages of testing.

First stage of testing

A. Platform and exercise training in order to find technical malfunctions. During this testing phase, time was spent looking for bugs in the digital platform and the exercises. The testers went through exercises with different devices and browsers in order to find not only technical malfunctions and bugs, but also clerical errors, absence or lack of feedback on exercises, etc.

B. Testing with experts. Filla & Rilla's structure, content and exercises were tested and reviewed by an expert group involving teachers and experts on traffic safety, rules, and digital applications.

Second stage of testing

Testing with children and their parents. The aim of this testing phase was to find out whether Filla & Rilla's exercises were understandable and motivating for children. The aim was also to test how long it would take for children to complete exercise modules.

Ten pupils from Grades 3 to 6 were recruited together with their parents for testing. The children's task was to complete Filla & Rilla's exercise modules and to answer how fun it was to do the exercises. Parents were tasked to monitor the child and fill in an online form after every exercise module (see "Online Form (Parents)" further on in this example).

Third stage of testing

Testing with classes. Three schools and five of their classes in Grades 3 to 6 were recruited for the last testing phase in order to find out how easy to use Filla & Rilla is in the classroom.

Classes were monitored while they were using Filla & Rilla, and pupils were asked to fill in an online form afterwards (see "Online Form (Pupils)" further on in this example). The images below show the feedback provided by 21 pupils in Year 4 in one particular school.

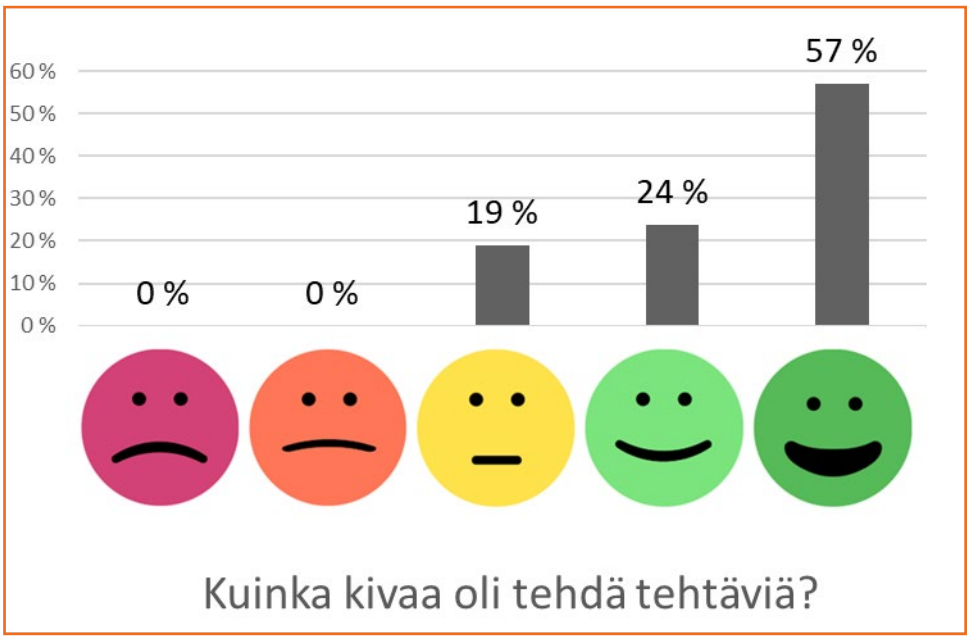


Figure 4 - "How fun was it to do the exercises?"

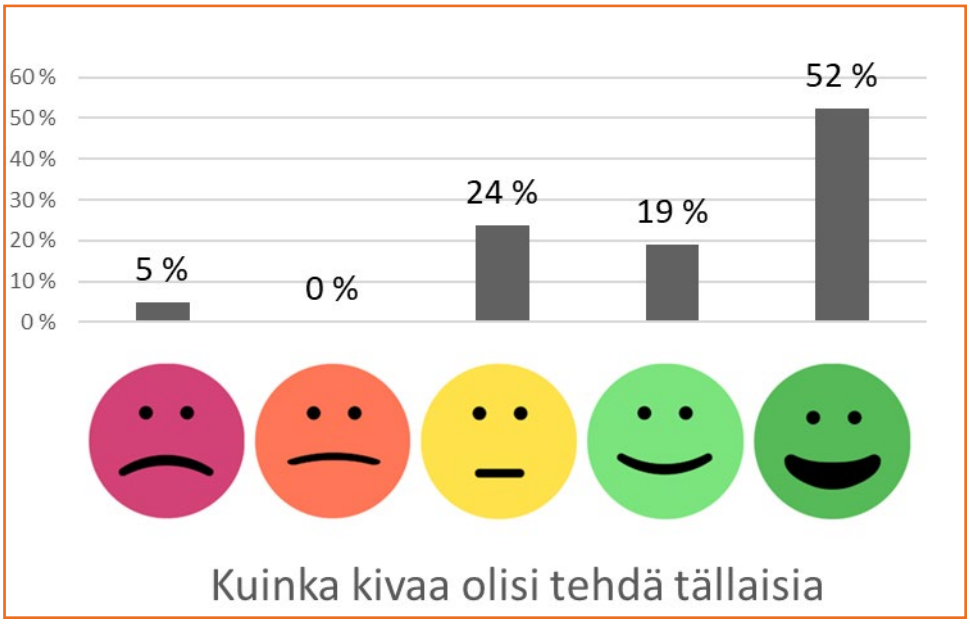


Figure 5 -"How fun would it be to do the exercises again?"

EXAMPLE

ONLINE FORM (PARENTS)

Day: _____
Child's grade: _____
Device and browser: _____
Tested module: _____

Write down in as much detail as possible your observations while your child is doing the exercises. We are interested in the following: - Does the child understand what she/he should do in the exercise? - Does the child have fun when doing the exercise? - Did this exercise take shorter or longer than other exercises?	
EXERCISE ON PAGE	**COMMENTS**
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	

Time it took to do the whole module: _____

ONLINE FORM (PARENTS)

DO YOU AGREE WITH THE FOLLOWING STATEMENTS? 1-5 (1=COMPLETELY DISAGREE, 5=COMPLETELY AGREE)

It was easy for the child to understand what to do in the exercises.

The child had fun doing the exercises

The exercises were too difficult to do for the child.

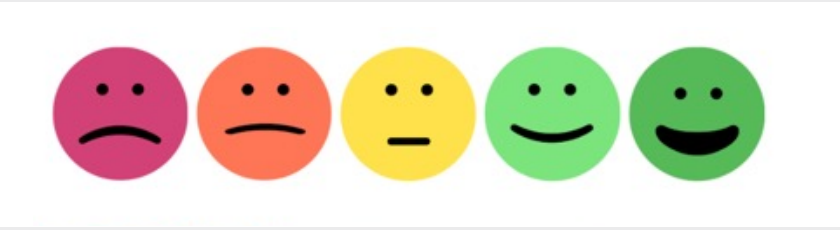
It was easy for the child to complete this module and concentrate on all exercises.

WRITE DOWN ALL REMARKS CONCERNING THIS MODULE AND ABOUT THE TESTING.

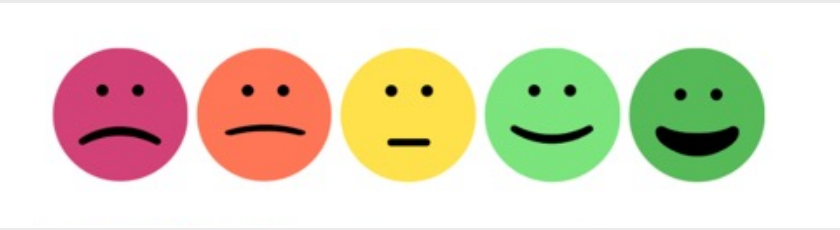
_____

AT THE END, ASK A CHILD FOR THE FOLLOWING:

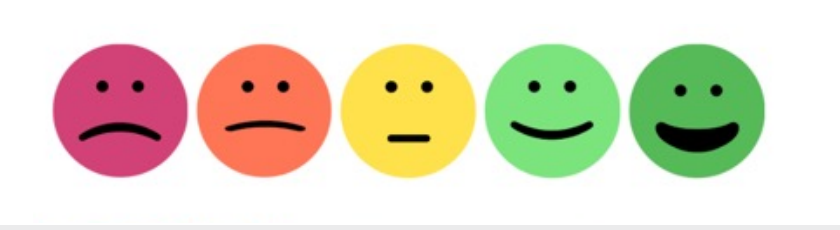
How fun was it to do the exercises? (select by pushing)



How fun would it be to do these exercises again? (select by pushing)



How fun would it be to do these exercises during the school day? (select by pushing)

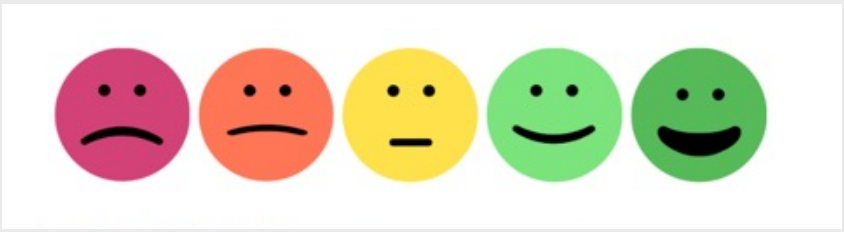


EXAMPLE

ONLINE FORM (PUPILS)

How fun was it to do the exercises? (select by pushing)

How fun would it be to do these exercises again? (select by pushing)



Do you want to tell us something about Filla & Rilla? How could Filla & Rilla be better?

_____

14 EXAMPLE 14: PRE-TESTING NEW TEACHING MATERIAL UNDER TIME PRESSURE

Related Steps	5 Pre-testing
Age groups	14 to 16 year olds

This example shows the importance of designing and conducting the pre-test of an activity even when having only little time to do so, as it provides valuable insights into what is working and what is not, which then allows for the activity to be adjusted.

5 PRE-TEST

Make a pre-test design and test your activity. Based on the results, make changes if needed. You may therefore have to go back to Step 2, 3 or 4.

In 2018, the award-winning film "While We Live" was released, telling the story of a tragic traffic collision involving young people. The Danish Road Safety Council had co-funded the production with the condition that the film could be used free-of-charge by Danish schools via a password-protected website.

New teaching material therefore needed to be developed to accompany the film. It was decided that a teacher's guide – with exercises and other activities to be used for teaching different subjects (traffic safety, social science, Danish, and religious education) – was to be developed and tested within only a few weeks, in order for it to be printed and sent to all the schools together with other materials. Consequently, there was only little time for testing and therefore the test design had to include what was best and possible under those conditions.

A qualitative testing method was used, involving two focus groups – one in east Denmark, one in west Denmark. Although the aim had been to get 12 teachers in each focus group (24 teachers in total), due to the teachers' busy schedules, only eight showed up in the first focus group and four in the second. However, they represented different types of schools (including a division based on city and rural schools as well as socio-economic characteristics). The participating teachers each received a gift card worth 50 Euro.

The focus group with eight teachers lasted three hours, whereas the other lasted two and a half hours, and both were led by a moderator. The teachers were given a "mock-up"/draft of the teacher's guide which already included all the text and pictures. They were first asked to look at the guide quickly – as if they had just received it at their school. They were then asked to write down their initial impressions of the guide.

They were subsequently asked to read the teacher's guide and, while reading, to individually fill in a document (questionnaire) with questions related to the guide´s different parts. They were not allowed to speak during this part of the session, in order to prevent them from being influenced by the other participating teachers.

When the teachers had all read the guide and answered the questionnaire (which took approximately 45 to 60 minutes), the guide and the filled-in questionnaires were discussed

in the focus group, with the discussion led by a moderator. The focus groups provided valuable insights into what worked and what did not, what was missing, what exercises the teachers would use and would not use, etc. These insights included:

- The structure of the teacher's guide should be altered, with sections in a different order.
- While the film may be relevant for the subject 'film education', the exercises were not deemed to be relevant enough in relation to the subject. The subject should therefore be dropped from film education and instead included under the subject 'social science'.
- More questions in relation to the statistical exercises should be included, as well as more analytical questions for when it was used for the subject 'Danish'.
- It should have more focus on group work and cooperative learning, by including questions for the pupils which the teacher could print out and give to the pupils or show on a screen. More inspiration examples of different types of group work should also be given.
- The 'reflection' questions should be more precisely formulated and preferably refer to special places in the film where the relevant theme appears.

After the focus groups had been held, a report on the results was presented and changes to the teacher's guide were made.[71] It was then printed and sent to the schools.[72] The use of the material is monitored (as log-in is required to access the film) and shows high usage. An evaluation of the material is scheduled to be conducted 1.5 to 2 years after the launch of material.

The left image shows the mock-up cover of the teacher's guide used during pre-testing. The image on the right shows the final cover of the teacher's guide. Source: Danish Road Safety Council

[71] "While We Live" teacher's guide can be found in Danish here: https://bit.ly/3arvtH0
[72] "While We Live" teaching material is available in Danish here: http://bit.ly/3u61Rqc

15 EXAMPLE 15: PRE-TESTING A HERO

Related Steps	5 Pre-testing
Age groups	5 to 8 year olds

This example shows the involvement of different actors during the pre-testing of a children's book on road safety.

5 PRE-TEST

Make a pre-test design and test your activity. Based on the results, make changes if needed. You may therefore have to go back to Step 2, 3 or 4.

Knight Eugene is the road safety hero for kindergarten and primary school pupils in Greece. He was born after a survey held by Responsible Young Drivers "Courtesy on the Road" in 2008, which showed that the Greeks are the most aggressive and rude drivers in Europe.

The Road Safety Institute (RSI) "Panos Mylonas" had the idea to propose a hero who, on the one hand, would model appropriate behaviour on the road (Eugene in Greek means a courteous man), and on the other would teach children essential skills and knowledge in order to stay safe as road users. Pupils would read the story of Eugene, sign a promise to respect other road users as well as the traffic code, and after completing some trials (road safety quizzes) also become "knights" and crusade for road safety by transferring the knowledge to peers and adults.

The book was developed by the RSI team in collaboration with experts, teachers, and psychologists. When the book was at the final stages of development, a mock-up version was sent to teachers of kindergartens and early primary school years in the RSI's network of schools. Teachers were asked to read the book and use it in their class in order to provide feedback concerning the storyline, the discussions and messages provided, the language used, the level of difficulty of the quizzes, as well as to answer whether the cartoon hero was well accepted by the children. Teachers' feedback proved useful for the final version of the book as well as the design of the cartoon.

Moreover, the book was sent to a developmental psychology expert at the National and Kapodistrian University of Athens for further feedback on whether the material would be appropriate to the developmental stage of the pupils. Minor issues were identified and subsequently addressed.

16 EXAMPLE 16: BOTTOM-UP AND TOP-DOWN APPROACHES FOR PROMOTING ACTIVITIES

Related Steps	7 7.1 – Promoting the Implementation and Use of the Activity 7.2 – Cooperation with Other Actors
Age groups	n/a

This example sets out an overview of the different bottom-up and top-down approaches used across Europe to promote the educational activities on traffic safety and mobility.

7 IMPLEMENT

Make a communications strategy with both bottom-up and top-down approaches. Include cooperation with other actors, like communities, schools, parents, police, and others.

Bottom-up approaches

Denmark

Teachers and traffic contact teachers in Denmark can sign up to a newsletter from the Danish Road Safety Council, which is sent approximately six times a year. It contains, among other things, information about new education activities on traffic safety and mobility education, results from evaluations and new surveys relevant for them, as well as encouragement to engage in those evaluations, their school campaigns (see example 19.3), invitations to webinars they organise, and news on school patrols.

In addition, the council also organises an annual training course for traffic contact teachers (regardless of how much experience they have) for which the costs are usually covered by the municipality or the school. The council also attends meetings in which multiple schools are gathered, and they also have a free hotline which teachers can call to get answers on questions they may have related to traffic safety and mobility education, or if they are new traffic contact teachers. Teachers and schools are also reached via the meetings in the municipalities as described in more detail in this example's section on top-down approaches.

Scotland

The Curriculum for Excellence is the philosophy underpinning the Scottish Education System, and, to ensure credibility within the learning and teaching profession, Road Safety Scotland has aligned all its resources with it.

"Road Safety within Curriculum for Excellence" is a guide for teachers that provides an overview of all the available educational resources and how they support the curriculum.[73]

[73] Road Safety Scotland (2020), Road Safety within Curriculum for Excellence 2020-21. https://bit.ly/3vGitEv

Road Safety Scotland collaborates with Education Scotland (the Scottish government's executive agency for education), to review and update this publication every year. As well as being made available online, it is distributed to all educational establishments across Scotland, and throughout the road safety community as well.

Top-down approaches

Denmark

The Danish Road Safety Council has contact persons in all municipalities, one in a municipality's schools department and one in their technical/infrastructure department, who can sign up for a newsletter specifically geared towards them which is send approximately six times a year. The council also participates in the municipalities' meetings where traffic safety is discussed with local partners, such as schools and the police. The contact persons can also contact the road safety council at any time.

Once a year, a two-day conference for municipalities is organised in Denmark where traffic safety and mobility education are also featured.

Czech Republic

The Czech Transport Research Center (CDV) has good experiences with sending emails to the regional offices for education. The regional offices then send these to all the schools in their district and the emails are therefore perceived as 'official' and well accepted by teachers.

The Netherlands

Regional governments in the Netherlands give subsidies to different entities for them to use good quality educational material. These subsidies allow for an increase in the reach of good quality material and activities, as the costs for schools can be minimised or even eliminated. Entities developing such material can therefore use these subsidies to promote and offer their activity at a lower price.

The road safety education toolkit from CROW in turn provides an overview of products which have been looked at according to the educational checklist, and for those included it provides an independent indication of the activity's quality.[74]

[74] CROW (2014), Checklist Road Safety Education. https://bit.ly/3a8nrlJ

17 EXAMPLE 17: THE PROS AND CONS OF TOP-DOWN APPROACHES FOR IMPLEMENTING HEART ZONES

Related Steps

7

7.1 – Promoting the Implementation and Use of the Activity
7.2 – Cooperation with Other Actors

Age groups

6 to 12 year olds

This example is about making safe zones around primary schools and shows advantages and disadvantages from a top-down approach.

7 IMPLEMENT

Make a communications strategy with both bottom-up and top-down approaches. Include cooperation with other actors, like communities, schools, parents, police, and others.

"Hjertesone" (*Heart Zone*) is a national initiative and a collaboration between the Norwegian Council for Road Safety, the Norwegian Public Roads Administration, the Directorate of Health, the police, the Cyclists' Association, the Environmental Agency, and the Parent Committee for primary and lower secondary education. All the actors are dedicated to promoting children's safety and health on the way to school.

The purpose of *Heart Zone* is to make the area around schools safer for the pupils. This is done primarily through behavioural and attitude measures that reduce parental driving and increase the proportion of children walking and cycling to school. Traffic safety and mobility education is a natural part of the project. The target is to help increase road safety around the school and improve the health of the pupils. Children who walk and cycle to school are physically active, which is good for public health and learning – as well as good for the environment.

There is no ready-made recipe for a *Heart Zone*. Measures must be adapted in a natural and sensible way with respect to the traffic environment and the opportunities that exist at each school. A *Heart Zone* is not a complete product, but a process consisting of small and large measures. Some measures take a short time to put in place, while others can be more demanding and take longer to implement.

There is no need for a formal political decision in the municipality to establish *Heart Zone* schools. Each school can start work on their safe zone independently. Experience shows that there are both pros and cons in making political decisions to establish the *Heart Zone* at all schools. Although political decisions have been made, the municipalities say that they mainly emphasise behavioural and attitude measures. Minor physical measures and regulations on the road network can supplement the work on attitudes.

From two Norwegian reports[75] we know:

Advantages of a top-down approach might be:

- Creates predictability and clearer frameworks for the whole project and especially the responsibility of the municipality;
- Social equalisation – effort and resources do not depend on the affluence or resourcefulness of parents or school management;
- Makes the municipality accountable;
- Sets standards and requirements for parties involved;
- Creates opportunities to carry out thorough preparatory work where one looks at problem areas and challenges;
- Possibility to ensure solid professional content/solid competence (for example, by preparing guidance materials etc).

Disadvantages of a top-down approach might be:

- Schools could lose ownership of the project;
- The measure can be perceived as an order, as opposed to being engaging and making your own decisions;
- Not all schools need to focus on this issue, which can lead to unnecessary use of resources;
- A general decision might lead to misunderstandings and misinterpretations;
- Diverts attention away from attitude-creating measures, and gives unrealistic expectations of many costly physical measures.

[75] Norconsult (2019), *Evaluering av Hjertesoneprosjektet ved Øren skole I Drammen commune.*
Norconsult (2020), *Hjertesone arbeidsdokument, Bergen.*

18 EXAMPLE 18: LAUNCHING THE "LIFE ON THE ROAD" PROJECT

Related Steps

7

7.1 – Promoting the Implementation and Use of the Activity
7.2 – Cooperation with Other Actors

Age groups

6 to 10 year olds

This example shows the different communication channels and methods that Prevenção Rodoviária Portuguesa (PRP) used to promote the implementation and use of their "Life on the Road" project.

7 IMPLEMENT

Make a communications strategy with both bottom-up and top-down approaches. Include cooperation with other actors, like communities, schools, parents, police, and others.

Mixing bottom-up and top-down approaches

A mix of top-down and bottom-up approaches was chosen in the communication strategy developed by Prevenção Rodoviária Portuguesa (PRP) to disseminate its MEOkids TV application and "Life on the Road" portal.

For the first stage, a top-down strategy was implemented, involving the Ministry of Education, the General Directorate of Education, enforcement organisations, the Road Safety National Authority, the National Parents Association, PRP Associate Members, and municipalities. All actors disseminated the activity by all means of communication available to them. Besides their dissemination efforts, generic and specialised means of communication were used for the dissemination of the initiatives (including on TV and in newspapers). A public launch event in a school with teachers and pupils performing the activities was also held in the presence of all stakeholders.

For the second stage, a bottom-up strategy was implemented. The activity was disseminated through schools and parents' associations at national level and a wider digital dissemination strategy was implemented through social networks, newsletters, emails to schools and parents' associations. These pedagogical activities are also disseminated during teacher training.

The interactive television application

PRP cooperated together with MEOkids TV, a Portuguese television channel specially dedicated to children, to launch the interactive television application "Vida na Estrada" ("Life on the Road"), which aims to promote road safety to pupils in Grades 1 to 4 (6 to 10 year olds) through pedagogical activities.[76]

[76] A short video on the "Life on the Road" television application can be found at: https://bit.ly/2WSXqRg

Using a game-based learning strategy, the "Vida na Estrada" project uses games to educate the pupils, thereby attracting the younger audience. The pedagogical activities aim to promote knowledge and skills, as well as the adoption of safe behaviour and attitudes in traffic, focusing on the role of the children as passengers, pedestrians and cyclists.

For the launch of the MEOkids TV application, a ceremony at a primary school was held, which was chaired by the Minister for Internal Administration and attended by various groups related to the fields of road safety and education. During the ceremony, a demonstration of the television application was made to a class of Grade 4 pupils.

The activities were widely publicised on the MEOkids TV channel through interviews with children and teachers as well as through promotional videos.[77] A press release was then sent to media outlets, which brought additional free publicity.

The project portal

PRP subsequently developed the online portal for the "Vida na Estrada" games, where adapted versions of the TV application's games can be played by the pupils. The online portal also features additional activities and is more interactive.

Promoting Vida na Estrada

In addition to the promotional activities mentioned above, the project was also promoted in several other ways.

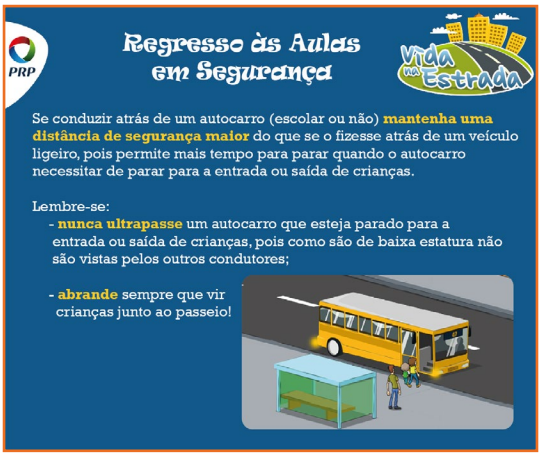
- A playful game called "How Many?", which contained questions on road safety
- Brochures for pedestrians, passengers and cyclists, which include the main content related to the knowledge and skills to be adopted in traffic[78]
- A flyer with a description of the activities[79]
- A video presenting the project[80]
- Roll-up banners for the activity
- Press releases on the launch of the project portal, sent to the media
- Promotion at events, such as AutoShow, street fairs, Children's Day, as well as road safety events in schools
- Dissemination through social media platforms Facebook and Instagram.

[77] The coverage of the launch on the MEO Kids TV Channel can be found at: https://bit.ly/36ks8Wz
[78] The brochures can be found here: https://bit.ly/2PAJn1p
[79] The flyer can be found here: https://bit.ly/3rmREUQ
[80] The video can be found here: https://bit.ly/3rtfnml

The roll-up banners.

Promotion at events and schools.

Game called "How Many?



Promotion on social media.

19 EXAMPLE 19: COOPERATION WITH OTHER PARTNERS

Related Steps	7 7.2 – Cooperation with Other Actors
Age groups	n/a

This example contains an overview of different forms of cooperation with different actors across Europe. It includes examples of cooperation with parents, teachers, the police, different governmental levels, and other organisations.

7 IMPLEMENT

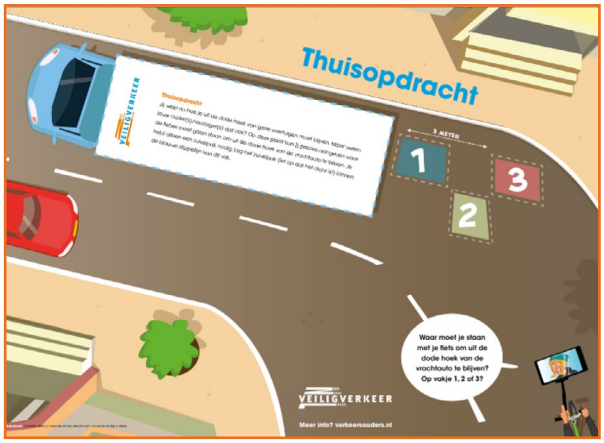
Make a communications strategy with both bottom-up and top-down approaches. Include cooperation with other actors, like communities, schools, parents, police, and others.

Example 19.1: Parents & other organisations

Veilig Verkeer Nederland developed a lesson for 10 to 12 year old children on the blind spots of trucks.[81] The lesson is a good example of cooperation with other organisations, as it was developed and implemented in cooperation with TLN, the Dutch association for the transport and logistics sectors. During the lesson, a truck visits the school, allowing the children not only to learn about blind spots, but also experience them from both outside and inside the truck.

The lesson also involves an element that continues the education on blind spots at home. An augmented reality game is developed for smartphones, in which children need to recover items while staying out of trucks' blind spots. As an alternative to the augmented reality game, a placemat is also available, which can be used by parents to talk about the blind spots of trucks, for example during dinner.

The VR application.



The placemat.

Source: Veilig Verkeer Nederland

[81] Veilig Verkeer Nederland (n.d.), Verkeersles: dode hoek. https://bit.ly/3bMeblW

Example 19.2: Teacher workshops and "Traffic at School" conference

The Flemish Foundation for Traffic Knowledge (VSV) provides workshops in which they allow teachers to familiarise themselves with the material they offer. VSV also organises a yearly "Traffic at School" conference for teachers, head teachers and volunteers involved in traffic education at school level. The conference focuses on educational aspects, practical guidelines, teaching methods, materials and projects for different age groups, from pre-school children to secondary school youngsters. Schools can submit a project to compete for the "Traffic at School" award. A series of online videos summarises the main points of interest and best practices discussed at the conference, serving as an inspiration and practical aid for teachers and volunteers.

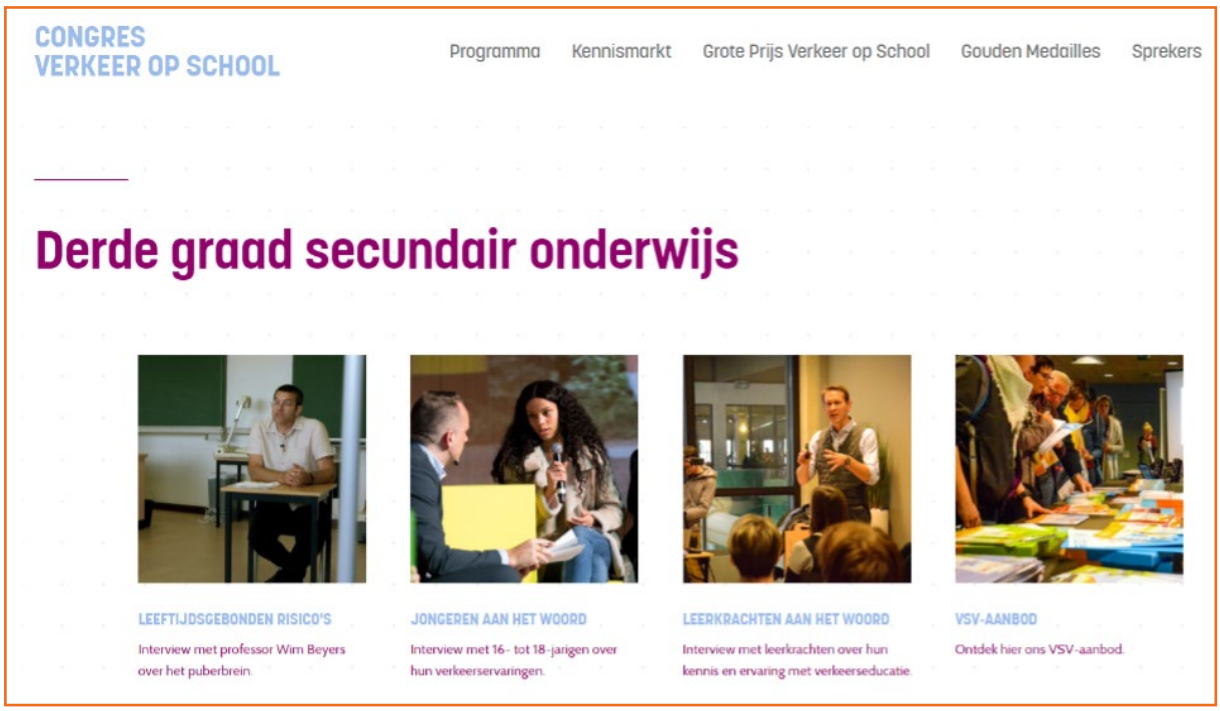


Figure 6 - The "Traffic at School" conference website with videos summarising the highlights of the past edition per age group. In this case the 2020 online conference topics for the oldest secondary school pupils (16-18 years of age): an interview with a developmental psychologist on the adolescent brain, an interview with youngsters on how they experience daily traffic situations, and interviews with teachers on how they integrate traffic education in their course.[82]

[82] VSV (n.d.), Congres Verkeer op School. https://bit.ly/3d4jbVE

Example 19.3: Teachers

The Danish Road Safety Council distributes a calendar to schools, which shows teachers what material to use at a given time of the year (January to December).

Figure 7 - The Danish Road Safety Council's calendar for the school year.

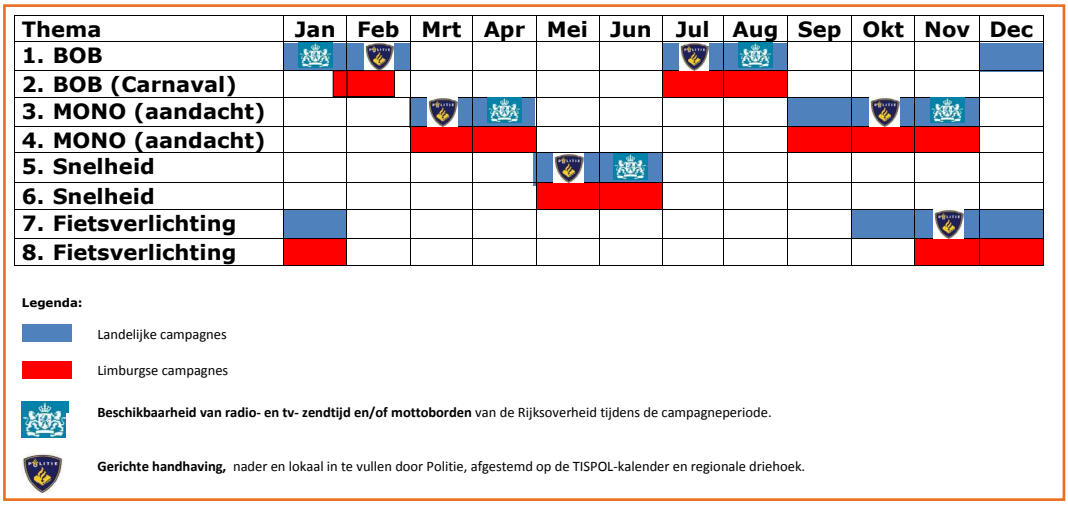
Similarly, the Finnish Road Safety Council (Liikenneturva) developed an "annual clock" as a planning aid for schools, teachers and pupils to plan traffic safety education, while keeping local conditions in mind. The annual clock is based on the idea that there are four hours of traffic safety education in every grade of basic education, with attention paid to seasons and current issues. The planning tool thereby makes traffic safety education long-term and systematic.[83]

Example 19.4: Police and different government levels

A national 'campaign calendar' exists in the Netherlands and Denmark, in which awareness raising campaigns are coupled with enforcement activities. Regional and local governmental authorities support the national calendar by implementing it in their area, taking into account regional and local characteristics.

For example, when an awareness raising campaign on the importance of bicycle lighting starts, additional enforcement activities are conducted by the police, notably around the schools, while different levels of government may also provide campaign material to the schools. Educational activities that align with the awareness raising campaigns can therefore reinforce the message.

[83] Liikennaturva (n.d.), Liikennekasvatuksen vuosikello. http://bit.ly/36rol2Y



Source: Regionaal Orgaan Verkeersveiligheid Limburg

Figure 8 - The calendar above shows the campaigns at national level in the Netherlands in the blue bars. Corresponding regional campaign activities are shown in the red bars, and if necessary adjusted to the local context, e.g. additional campaigns focusing on drink driving (BOB) during a regional festive season (Carnaval). The blue badges represent specific police enforcement focused on those topics accompanying the campaigns.

Example 19.5: Different Government Levels

The Traffic Weeks workshops are geared to youngsters: for example, for first grade pupils there is particular attention for bicycle safety and risk awareness as vulnerable road users, second grade pupils learn about the risks of distraction in traffic, and for third grade pupils there are training packages on car-related risks such as drink driving, not wearing of seat belts, and speeding.

The Traffic Week in Mechelen (Belgium) was so successful that other Belgium municipalities had started implementing it as well.

In order to provide all secondary schools in Flanders (Belgium) with ready-to-use activities on traffic safety and mobility education, the Flemish Foundation for Traffic Knowledge (VSV) started its Traffic Weeks project in 2017. Traffic Weeks is an initiative that is supported by the Flemish government (regional level), which in turn is promoted by VSV at the local level aimed at municipalities and schools.

The project is a travelling roadshow that consists of experience-oriented workshops on a variety of road safety topics for all pupils according to the year they are in. The workshops are combined in one-week packages – hence the name Traffic Weeks – and can be booked by one school or a group of schools.

All the workshops take place in the school and are given by experienced teachers from VSV. For the schools a Traffic Week follows the plug-and-play principle: all they have to do is to make an online reservation for the week of their choice, provide room to run the workshops, and schedule the pupils according to class and year. This ease of use is one of the key reasons for the great success of the Traffic Week initiative.

Source: VSV

20 EXAMPLE 20: COOPERATING WITH STAKEHOLDERS ON THE WEBSITE "SYKKELDYKTIG.NO"

Related Steps	7 7.2 – Cooperation with Other Actors
Age groups	n/a

This example shows how four different Norwegian organisations cooperated and developed a website acting as a 'one-stop shop' for their cycling training material.

7 IMPLEMENT

Make a communications strategy with both bottom-up and top-down approaches. Include cooperation with other actors, like communities, schools, parents, police, and others.

Sykkeldyktig means "able to cycle" in Norwegian.

All information related to training on bicycles in primary education in Norway is collected on one website, www.sykkeldyktig.no, which was the result of a collaboration between four organisations.[84]

Sykkeldyktig.no

The Norwegian curriculum for primary schools includes competence aims related to safe cycling, and both the competence aims and core curriculum are reflected on the online portal. Sykkeldyktig.no was developed using a Content Learning Management System (CLMS) and is used directly in the classroom. Theoretical knowledge as well as practical cycling skills and training are introduced using live examples (films), animated films and follow-up questions to each topic. Practical training in schools is carried out, followed by testing of the pupils – both practical and theoretical. This online portal acts as a one-stop shop for teachers, as the essential content that the teacher requires for cycling education is provided on this one website. The relevant stakeholders that provide content on the website remain responsible for their own content.

Most of the sykkeldyktig.no content had already been developed, but as a platform it was new, as was its visual presentation. Websites and learning platforms provide a lot of new possibilities, and in the case of sykkeldyktig.no it was decided to change pictures into films. Further content development is ongoing, and a digital information course was launched in April 2021.

[84] Trygg Trafikk (The Norwegian Council for Road Safety), Syklistenes landsforening (Norwegian Cyclists' Assosiciation), Norges Automobilforbund (Norwegian Automobile Assocation) and Norges Cycleforbund (Norwegian Cycling Federation)

Cooperation on sykkeldyktig.no

With four organisations all working to interest children and schools, a broad network was available for implementing the website. In one year, remarkably, the group reached more than half of all the Norwegian municipalities. The schools get access to the resource through a common electronic identification system (called FEIDE in Norway), which is dependent on their municipalities as they have to establish those systems, and therefore both bottom-up and top-down approaches were considered appropriate, and their communications strategy therefore contained both.

The collaboration itself was well received by the participating organisations, as it led to cooperation – instead of competition – with the other stakeholders that want to provide cycling activities for schools.

21 EXAMPLE 21: EVALUATING THE "HELP THE HELMETLESS" ACTIVITY

Related Steps	8 Evaluation
Age groups	15 to 25 year olds

This example illustrates how the "Help the Helmetless" activity was evaluated using a mix of quantative and qualitative evaluation methods, and included baseline and post-activity measurements.

8 EVALUATE

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

"Help the Helmetless" ("Hjælp en hjelmløs") is an activity which since 2016 has run every year in the autumn (normally in September) at universities and higher education institutions in Denmark to promote the use of cycle helmets.

16 to 25 year old youngsters are the age group with the lowest rate of cycle helmet use in Denmark and are also one of the age groups that uses bicycles the most – especially in cities. Insight studies done in 2015, before the activity's design was developed, showed different reasons for not wearing helmets, and also showed what could motivate students in higher education. Identified motivators included reducing the bridge between going from decision to purchase, and an "If you do it, I will do it too" mentality.

A concept was made with pop-up shops at selected universities and higher education institutes selling a limited number of helmets at a reduced price (14 to 20 Euro). Every year, the pop-up shops visit two to five selected institutions for two or three days and sell between 250 and 450 helmets at each place.

Source: Danish Road Safety Council

The evaluation of "Help a Helmet-less" was conducted using quantitative and qualitative methods:

- Quantitative: Survey (mobile survey answered via smartphones) sent to the students one month after the students had purchased the helmets (follow-up survey).
- Qualitative: Observation of helmet use at the universities and higher education institutions selected for a visit, both before and after the pop-up shop was there. During the observations, the number of students wearing a cycle helmet before the event (one week before) and after the event had run (one week after) were counted.

The observations showed that the initiative had a significant effect. However, this qualitative evaluation method was only conducted a few times, as the same significant effect was found via the quantitative survey, as well as due to the resources and time required for the observations.

Source: Danish Road Safety Council

22 EXAMPLE 22: EVALUATING THE "BE SEEN" PROJECT

Related Steps

8 **Evaluation**

Age groups

Pupils between 6 and 14 years of age
Students and persons of 15 years of age and older

This example shows what methods the Prevenção Rodoviária Portuguesa (PRP) used to evaluate their "Be Seen" project and what results they found.

8 EVALUATE

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

Background to the "Be Seen" project

The "Be Seen" project, developed by Prevenção Rodoviária Portuguesa (PRP), consists of a set of actions, including educational activities, aimed at promoting the use of reflective material by pedestrians during periods of poor visibility, and also to raise drivers' awareness of the problem of pedestrians being run over. It aims to contribute to changes in behaviour, in order to reduce the risk of being run over at night, inside and outside urban areas. The project focuses specifically on children (between the ages of 6 and 14) and adults over 65 as the target groups that are most at risk.

The project's activities include, among other things, road shows at schools and public events where demonstrations and simulations are carried out on the use of reflective material through the use of dark rooms. For children up to 14 years old, several activities were developed, to be explored together with their teachers in the classroom, including 'true or false' activities, identification of correct and incorrect behaviours, completing sentences, painting, and a virtual simulator which allows for comparing visibility distances with and without reflective material.

For students aged 15 years and older, additional content was made available for teachers, for example on reflection and refraction of light, examples of reflective material and how it works, and characteristics of the reflective vest.[85] Teachers were encouraged to explore these contents in physics and chemistry classes.[86]

[85] In addition to students in schools and universities, the activity was also provided outside of schools, for example during events organised by PRP and therefore also targeted persons aged 15 years and older not in formal education (see example 23).
[86] For more information on incorporating traffic safety and mobility education as part of other subjects, see LEARN! Key Principle #14 on interdisciplinary material. http://bit.ly/LearnKeyPrinciples

Evaluation design

The evaluation of the "Be Seen" project was carried out separately for children up to 14 years of age and for persons aged 15 years and older. For this purpose, a separate survey was developed for each group (see example 23 for the surveys), which contained questions on, among other aspects, the perception of the importance of using reflective material in conditions of reduced visibility, ownership of reflective material as well as habits and intentions to use it.

The surveys were first conducted before the implementation of the project (baseline measurement) in October and November 2015. Both digital (online) and paper versions of the survey were used. The paper versions were used for the younger pupils, with the youngest pupils also being supported by their teachers when filling out the questionnaires. The digital online questionnaires were used to survey the older target group.

The surveys were then conducted again after the implementation of the project (post-activity measurement) in April 2016. The outcome of the activity was assessed through the comparison of the results and variables studied in the questionnaires before and after the implementation of the campaign.

Results for children up to 14 years of age

The results of the evaluation showed that the project had a positive impact on the perceptions of using reflective material: the percentage of children who reported that it is normal to wear reflective clothing or accessories when walking increased from 21% before the campaign to 41% after the campaign. There was also an increase from 68% to 86% in the percentage of children who stated it was possible for them to use reflective clothing or accessories, and the percentage of children who said they were going try to use reflective material when walking increased from 63% to 74%. Furthermore, there were significant increases in the percentages of children who consider that reflective material should be used (from 72% to 84%) and who consider wearing clothes or reflective accessories is good (from 80% to 94%) and safe (from 86% to 96%). The analysis showed that these differences were statistically significant.

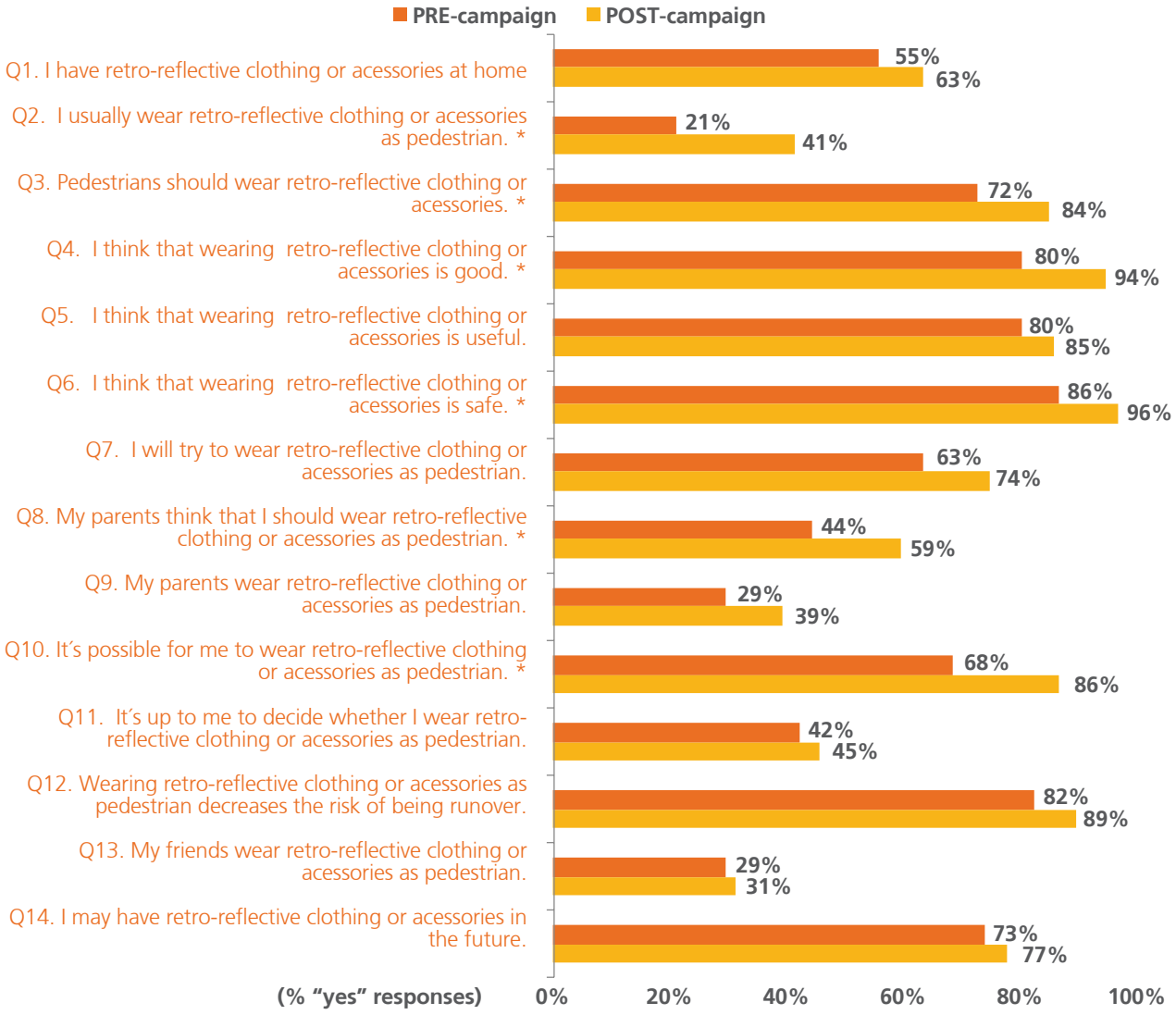


Figure 9 - Characterisation of the responses to the questionnaire, before and after the campaign. The results show that the percentage of children who answered "true" increased in all questions in the questionnaire. (* statistically significant differences: p <0.05 in the Chi-Square Test).

Results for persons aged 15 years and older

The questionnaire to assess the outcome of the project for persons aged 15 years and older included 59 questions divided into three parts.

For the first part of the evaluation, 51 questions were grouped into questions on intention, previous behaviour, attitude, subjective norms and perception of behavioural control, based on the Theory of Planned Behaviour.[87] Although there was no significant difference in the perception of behavioural control and previous behaviour, the results of the evaluation showed that the project had a significant impact on the intention to use reflective material in the three months following the activity, in the individual's perception of the advantages and disadvantages, the consequences in relation to the reflective material use, and in the perception of the social pressure that individuals feel to use reflective material.

[87] Ajzen (1991), The theory of planned behavior. Organizational behavior and Human Decision Processes, 50, 179-211. https://bit.ly/3brvd8v

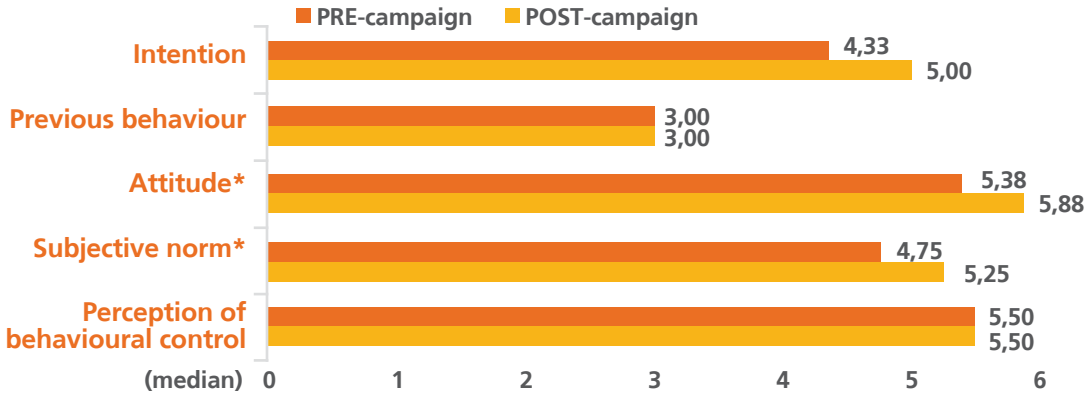


Figure 10 - Medians of the dimensions assessed before and after the project. (* statistically significant differences: p <0.05 on the Mann-Whitney test).

The second part of the survey included a question based on the Trans-theoretical Model of Behaviour Change[88], with the possible answers graded according to the five phases of change that people go through when they decide to change their behaviour. The five phases range from not even thinking about any change in behaviour, to the phase in which they successfully maintain that change. The results of the evaluation found that the project had a statistically significant effect on participants. The number of persons that did not consider using reflective material (pre-contemplation) and those who had been thinking about using it (contemplation) decreased, while the number of persons who indicated they would start using it soon (preparation) and especially the number of persons that indicated they now use reflective material regularly (action) increased. However, there was a slight decrease in the number of persons who indicated they had used reflective material always or almost always over the previous six months (maintenance).

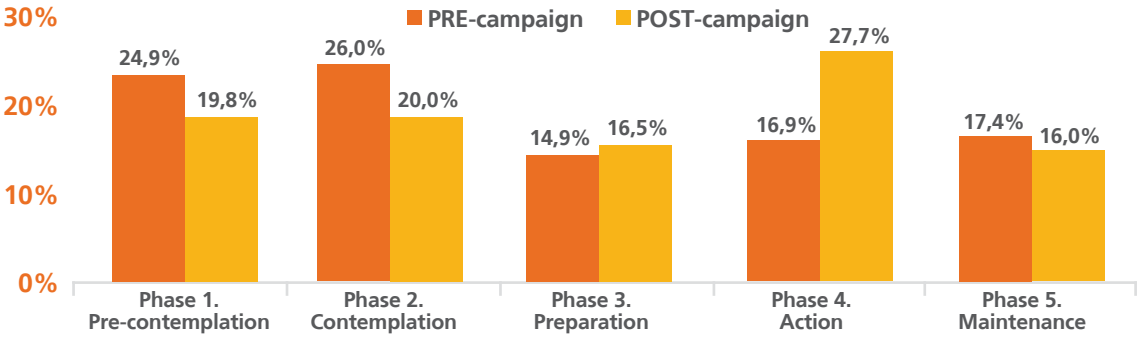


Figure 11 - Distribution by the different phases of the change in the Trans-theoretical Model of Behaviour Change, before and after the campaign (Chi-Square Test: p = 0.025).

The third part of the survey included demographic questions (gender, age, qualifications) as well as questions related to the means of transport used and travel as a pedestrian (urban/rural roads, mode and travel time) in particular.

Final Remarks

Having used baseline and post-activity measurements in the design of the evaluation, a comparison between the results of the surveys showed that the "Be Seen" project led to positive results for both children under the age of 14 years and older. Bearing in mind that the levels of use of reflective material are still low, the evaluation also showed that further activities with the aim of promoting their use should be developed and implemented.

[88] Prochaska, DiClemente, & Norcross (1992). In search of how people change: Applications to the addictive behaviors. American Psychologist, 47, 1102–1114. https://bit.ly/3a8Kg8T

23 EXAMPLE 23: EVALUATION SURVEYS OF THE "BE SEEN" PROJECT

Related Steps	Evaluation
Age groups	Pupils between 6 and 14 years of age Students and persons of 15 years of age and older

This example shows the two surveys that Prevenção Rodoviária Portuguesa (PRP) used to evaluate their "Be Seen" project, thereby providing examples of the structure and design of evaluation questionnaires.

8 EVALUATE

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

As described in the previous example, Prevenção Rodoviária Portuguesa (PRP) used surveys to measure the outcomes of their "Be Seen" project, with one questionnaire for the children under 14 years of age, and a different one for persons aged 15 years and older. The surveys were first conducted before the project was implemented (baseline measurement), and again afterwards (post-activity measurement).

These two surveys, translated into English and adapted to form a printable version, are set out in this example.

Persons aged 15 years and older filled in the questionnaire online using Survey Monkey. PRP used the software's capability to present the questions in a random order. For the purpose of this manual, the questions have been listed in the order in which they were uploaded on Survey Monkey, with additional headings added in brackets to illustrate which questions belong to which subscale.

In order to avoid response automatism, PRP furthermore reversed the scales for some questions, where the desired answer would appear on the left side of the scale instead of the right side.

SURVEY FOR CHILDREN UP TO 14 YEARS OF AGE

Answer Yes or No; Supervised by teachers

	Questions	Yes	No
1	I have reflective clothing or accessories at home.		
2	I usually wear reflective clothing or accessories as a pedestrian.		
3	Pedestrians should wear reflective clothing or accessories.		
4	I think that wearing reflective clothing or accessories is good.		
5	I think that wearing reflective clothing or accessories is useful.		
6	I think that wearing reflective clothing or accessories is safe.		
7	I will try to wear reflective clothing or accessories as a pedestrian.		
8	My parents think I should wear reflective clothing or accessories as a pedestrian.		
9	My parents wear reflective clothing or accessories as pedestrians.		
10	It is possible for me to wear reflective clothing or accessories as a pedestrian.		
11	It's up to me to decide whether I wear reflective clothing or accessories as a pedestrian.		
12	Wearing reflective clothing or accessories as a pedestrian decreases the risk of being run over.		
13	My friends wear reflective clothing or accessories as pedestrians.		
14	I may have reflective clothing or accessories in the future.		

QUESTIONNAIRE ON THE USE OF REFLECTIVE MATERIAL BY PEDESTRIANS

This questionnaire aims to understand the population's perception of the use of reflective material by pedestrians, in situations of reduced visibility, inside and outside urban areas. In this context, we are interested in hearing your opinion.

Please read each question carefully and answer spontaneously.

There are no correct or incorrect answers; we are only interested in knowing your perspective.

All responses to this questionnaire are anonymous and confidential.

Thank you for your participation.

Instructions

You are asked to answer the items in this questionnaire using a scale with 7 possible answers; please circle the number on the scale that best describes your opinion. For example, if you were asked to rate "Portuguese food" on this scale, the 7 possible responses should be interpreted as follows:

1. Portuguese food is:

Good	1	2	3	4	5	6	7	Bad
	extremely	quite	a little	neither	a little	quite	extremely	

If you considered Portuguese food to be extremely good, then you should put a circle around the number 1, as you can see below:

1. Portuguese food is:

Good	(1)	2	3	4	5	6	7	Bad
	extremely	quite	a little	neither	a little	quite	extremely	

If you considered Portuguese food to be neither good nor bad, then you should circle the number 4, as shown below:

1. Portuguese food is:

Good	1	2	3	(4)	5	6	7	Bad
	extremely	quite	a little	neither	a little	quite	extremely	

[Perceived Behavioural Control subscales, Subjective Norm, Attitude and Intention]

1 I intend to use reflective material in situations of reduced visibility inside and outside urban areas in the next three months.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

2 For me to use reflective material in situations of reduced visibility, inside and outside urban areas, in the next three months, would be:

Bad 1 2 3 4 5 6 7 Good

---

3 I am expected to use reflective material in situations of reduced visibility inside and outside urban areas in the next three months.

Definitly true 1 2 3 4 5 6 7 Definitly false

---

4 For me to use reflective material in situations of reduced visibility, inside and outside urban areas, in the next three months, would be:

Useless 1 2 3 4 5 6 7 Useful

---

5 I plan to use reflective material in situations of reduced visibility inside and outside urban areas in the next three months.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

---

6. For me to use reflective material in situations of reduced visibility, inside and outside urban areas, in the next three months, would be:

Harmful 1 2 3 4 5 6 7 Beneficial

---

7. Most of the people whose opinions I value would approve of my use of reflective material in situations of reduced visibility inside and outside urban areas in the next three months.

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

---

8. For me to use reflective material in situations of reduced visibility, inside and outside urban areas, in the next three months, would be:

Unwise 1 2 3 4 5 6 7 Wise

---

9. I will make an effort to use reflective material in situations of reduced visibility inside and outside urban areas in the next three months.

Definitely true 1 2 3 4 5 6 7 Definitely false

---

10. For me to use reflective material in situations of reduced visibility, inside and outside urban areas, in the next three months, would be:

Unpleasant	1	2	3	4	5	6	7	Pleasant

11. How much control do I believe I have over the use of reflective material in situations of reduced visibility inside and outside urban areas in the next three months?

No control	1	2	3	4	5	6	7	Total control

12. For me to use reflective material in situations of reduced visibility, inside and outside urban areas, in the next three months, would be:

Unsafe	1	2	3	4	5	6	7	Safe

13. The people in my life whose opinions I value

Will use	1	2	3	4	5	6	7	Will not use

reflective material in situations of reduced visibility inside and outside urban areas in the next three months.

14. For me to use reflective material in situations of reduced visibility, inside and outside urban areas, in the next three months, would be:

Uncomfortable	1	2	3	4	5	6	7	Comfortable

15. I am the one who will decide whether to use reflective material in situations of reduced visibility inside and outside urban areas during the next three months.

Strongly agree	1	2	3	4	5	6	7	Strongly disagree

16. For me to use reflective material in situations of reduced visibility, inside and outside urban areas, during the next three months, would be:

Insignificant	1	2	3	4	5	6	7	Important

17. If I wanted, I could use reflective material in situations of reduced visibility inside and outside urban areas during the next three months.

Definitely true	1	2	3	4	5	6	7	Definitely false

18. Most people important to me think that

I should	1	2	3	4	5	6	7	I should not

use reflective material in situations of reduced visibility inside and outside urban areas during the next three months.

19. For me to use reflective material in situations of reduced visibility, inside and outside urban areas, during the next three months, is:

Impossible 1 2 3 4 5 6 7 Possible

[Behavioural Beliefs subscale]

20. The use of reflective material in situations of reduced visibility, inside and outside urban areas, will reduce the risk of me being run over.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

21. Decreasing the risk of being run over would be:

Bad 1 2 3 4 5 6 7 Good

---

22. The use of reflective material in situations of reduced visibility, inside and outside urban areas, will make me an example for others.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

23. The use of reflective material in situations of reduced visibility, inside and outside urban areas, will ruin my image.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

24. The use of reflective material in situations of reduced visibility, inside and outside urban areas, will decrease my feeling of freedom.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

25. The use of reflective material in situations of reduced visibility, inside and outside urban areas, will be uncomfortable.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

26. The use of reflective material in situations of reduced visibility, inside and outside urban areas, will make me feel I stand out from the crowd.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

27. The use of reflective material in situations of reduced visibility, inside and outside urban areas, will make me feel stupid.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

---

28. If you use reflective material in situations of reduced visibility, inside and outside urban areas, it will make you feel stupid.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

[Control Beliefs subscale]

---

29. I will be able to find reflective material for sale in the next three months.

Probable 1 2 3 4 5 6 7 Improbable

---

30. The use of reflective material on clothing will negatively influence my appearance.

Probable 1 2 3 4 5 6 7 Improbable

---

31. Clothing with reflective material is less comfortable.

Probable 1 2 3 4 5 6 7 Improbable

---

32. Applying reflective material to clothing will make garments more expensive.

Probable 1 2 3 4 5 6 7 Improbable

---

33. The difficulty in accessing reflective material will make it

Probable 1 2 3 4 5 6 7 Improbable

for me to use it in situations of reduced visibility inside and outside urban areas during the next three months.

---

34. The aesthetic appearance of the reflective material would influence my use of it in situations of reduced visibility inside and outside urban areas in the next three months.

Disagree 1 2 3 4 5 6 7 Agree

---

35. If the reflective material were included discreetly or imperceptibly in everyday clothing, it would be easier to use.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

---

36. Finding a garment with reflective material at the same price as a garment without reflective material would make its use more common.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

---

37. If the dress code of my workplace included pieces of clothing with reflective material, it would be easier to use.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

---

38. Having comfortable items of clothing with comfortable reflective material would help me to wear them in situations of reduced visibility inside and outside urban areas during the next three months.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

[Normative Beliefs and Descriptive Norms subscales]

39. My family thinks that

I should 1 2 3 4 5 6 7 I should not

use reflective material in situations of reduced visibility inside and outside urban areas during the next three months.

---

40. When it comes to safety issues, I want to do what my family thinks I should be doing.

Agree 1 2 3 4 5 6 7 Disagree

---

41. Most of my friends will use reflective material in situations of reduced visibility inside and outside urban areas during the next three months.

False 1 2 3 4 5 6 7 True

---

42. When it comes to safety issues, how much do I want to be like my friends?

A lot 1 2 3 4 5 6 7 Not at all

---

43. Most of the people who are important to me use reflective material in situations of reduced visibility inside and outside urban areas.

Completely true 1 2 3 4 5 6 7 Completely false

---

44. The people in my life whose opinions I value

Use 1 2 3 4 5 6 7 Don't use

reflective material in situations of reduced visibility inside and outside urban areas.

---

45. Many people like me use reflective material in situations of reduced visibility inside and outside urban areas.

Extremely unlikely 1 2 3 4 5 6 7 Extremely likely

[Previous Behaviour and Personal Norms subscales]

46. How often during the past three months have you used reflective material in situations of reduced visibility, both inside and outside urban areas?

Never 1 2 3 4 5 6 7 Always

---

47. How often, in the last three months, did you use reflective material in situations of reduced visibility, inside and outside urban areas?

Every day 1 2 3 4 5 6 7 Never

---

48. Reflective material should always be used in situations of reduced visibility, inside and outside urban areas.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

---

49. Not using reflective material in situations of reduced visibility, inside and outside urban areas, weighs on my conscience.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

---

50. I will feel guilty if I do not use reflective material in situations of reduced visibility, inside and outside urban areas, during the next three months.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

---

51. It is morally wrong for me not to use reflective material in situations of reduced visibility, inside and outside urban areas, over the next three months.

Strongly agree 1 2 3 4 5 6 7 Strongly disagree

[Change subscale]

52. Among the following statements, circle the number that best describes how you currently think.

1. I do not use reflective material in situations of reduced visibility, inside and outside urban areas, and I also have no intention of doing so.
2. I do not use reflective material in situations of reduced visibility, inside and outside urban areas, but I have been thinking about the possibility of starting to do so.
3. I never or rarely use reflective material in situations of reduced visibility, inside and outside urban areas, but soon I will start doing it on a regular basis.
4. I use reflective material in situations of reduced visibility, inside and outside urban areas, regularly.
5. For more than six months I have always or almost always used reflective material in situations of reduced visibility, inside and outside urban areas.
6. For several years now, I have used reflective material in situations of reduced visibility, inside and outside urban areas, and I will continue to do so.

24 EXAMPLE 24: RANDOMISED CONTROLLED TRIAL OF THE "ROAD SAFETY LIVE" INITIATIVE

Related Steps	8 Evaluation
Age groups	13 to 16 year olds

This example shows how professional researchers used a randomised controlled trial to evaluate the Danish Road Safety Council's "Road Safety LIVE" initiative and what results they found.

8 EVALUATE

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

In order to evaluate the effectiveness of their "Sikker Trafik LIVE" ("Road Safety LIVE") initiative (as introduced in more detail in example 4), the Danish Road Safety Council contracted the Danish Center for Social Science Research (VIVE) to conduct a randomised controlled trial (RCT).[89]

For the evaluation of the "Road Safety LIVE" intervention, 93 schools were recruited in the summer of 2016. The evaluation used a waiting-list design, meaning that the schools were randomised to receive the intervention either as the *experimental group* in the autumn of 2016 or as the *control group* in the spring of 2017.

The evaluation furthermore used cluster randomisation, meaning that the randomisation was made at school level (as opposed to individual level). As schools would often book several "LIVE" visits at the same time (for different year groups), the randomisation at school level allowed the researchers to avoid situations in which pupils from the experimental group, who had participated in the "LIVE" visits, would influence those who had not yet participated (the control group).

The baseline measurement was conducted using an electronic questionnaire between 30 August and 16 September 2016, before the experimental group received the "LIVE" visit later that autumn. The post-activity measurement, also using an electronic questionnaire, was subsequently conducted in January 2017 – after the experimental group had received the "LIVE" visit, but before the control group would receive the "LIVE" visits later that spring. For both measurements, contact teachers were responsible for making sure that the pupils completed the questionnaires. 3,779 pupils responded to the baseline questionnaire, and 1,855 pupils responded in the post-activity measurement.[90]

The questionnaire used during the measurements focused on knowledge, attitudes and behaviour, as these are the areas the Danish Road Safety Council seeks to influence with the "Road Safety LIVE" visits (see example 4 for the objectives set for the initiative).

[89] See Step 8 for more information on randomised controlled trials.
[90] This decrease in participation is explained as there is less focus on the questionnaire after the intervention, and as teachers would often fail to understand that they had to complete the questionnaire twice.

The data acquired during the measurements was subsequently analysed, with the researchers applying two statistical methods to help account for any differences between the schools, and to ensure that their results were robust. The data showed that the experimental and the control groups were broadly similar.

With regard to knowledge, the evaluation results showed that a significantly higher number of pupils who had received the "LIVE" visit (the experimental group) knew which age group is most vulnerable in traffic, compared to those pupils who had not yet received such a visit. Significantly more pupils from the experimental group knew which three factors cause most road deaths and injuries, and therefore the pupils in the experimental group gained significantly more knowledge about road safety compared to the pupils in the control group.[91]

With regard to attitude, the evaluation results showed that during the post-activity measurement, significantly more pupils from the experimental group do not think it is acceptable to drive without a seatbelt, and they are less tolerant of risk behaviour such as texting while cycling and speeding in a car or on a moped. The results also showed significant differences between the regions in Denmark, for example significantly more pupils in the region around Copenhagen than in the other regions think that it is not OK to ride an illegally modified ('tuned') moped.

However, both baseline and post-activity measurements showed that while a considerable number of pupils (in both groups) stated that different forms of risk behaviour presented to them were not acceptable, approximately 20% of all pupils still think it is appropriate to drive 100 km/h on a 80 km/h road, 30% think it is acceptable to text while cycling, and 15% think it is acceptable to drive on an illegally modified ('tuned') moped.

With regard to the pupils' behaviour, the evaluation results found that the pupils' use of cycle helmets and using a mobile phone while cycling correlated with their parents' behaviour, with both fathers and mothers who have had fewer years of education using their mobile phones significantly more when cycling. Also for other types of risk behaviour, the evaluation found that significantly fewer pupils in the experimental group whose parents had received less education objected when they were confronted with such risk behaviour.

Although more pupils from both groups said in the post-activity measurement that they listened to music while cycling, the increase was significantly smaller for the experimental group. In addition, pupils in the experimental group were better at objecting and asking others to change their behaviour than the control group. However, although these results were positive, they were not significant. Significantly more girls than boys in the experimental group objected to speeding.

The evaluation report concluded that positive impacts of the "Road Safety LIVE" initiative were found, particularly with regard to knowledge and attitude. Taking into account the size of the activity, the report concluded that its results are good, with the positive development in pupils' knowledge and attitude possibly having a long-term impact. Furthermore, it suggested it would be beneficial to focus more on the young persons' own behaviour in traffic, particularly when cycling.

Overall, the evaluation report concluded that the method in the "Road Safety LIVE" initiative of using ambassadors who tell pupils about their personal stories is effective. The full evaluation report can be found in English online.[92]

[91] Keep in mind that the control group had not yet had the LIVE visit when they filled in the questionnaire for the post-activity measurement. They would only have it later that spring.
[92] Hansen, Møller Sandoy&Kristensen (2017), A randomized controlled trial of "Sikker Trafik LIVE" ("Road Safety LIVE") – Sub-report 1 – Educational intervention for primary and lower secondary schools to 10th grades (13-17 years old). http://bit.ly/LIVERCT

25 EXAMPLE 25: EVALUATING THE "ROAD SAFETY LIVE" INITIATIVE

Related Steps	8 Evaluation
Age groups	13 to 16 year olds

This example shows what methods the Danish Road Safety Council uses to continously evaluate their "Road Safety LIVE" initiative and what results it found.

8 EVALUATE

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

In addition to the randomised controlled trial to evaluate the effectiveness of the "Sikker Trafik LIVE" ("Road Safety LIVE") initiative, as presented in example 24, the Danish Road Safety Council also continuously conducts post-activity measurements to evaluate whether the activity is achieving its objectives (see example 4). For these post-activity measurements, the council uses the following quantitative and qualitative methods:

- Quantitative: Survey (mobile survey answered via smartphones) for pupils, who answer the survey just after they have been taught in the classroom. (See example 26 for the survey).
- Quantitative: Survey (mobile survey) for teachers, who receive the survey just after the visit. (See example 26 for the survey).
- Quantitative: Survey (mobile survey) for pupils. (See example 26 for the survey). This follow-up survey is send to the pupil´s mobile phone either 6 to 10 months or 12 to 16 months after they have participated in a LIVE visit. The reason for the difference in when they receive the follow-up survey was to see what the longer-term effects of the activity were. So far, the analysis of the results shows that the effect mostly remained, but fewer pupils answered the survey when they received the follow-up survey 12 to 16 months after the visit. Consequently, the results must be seen in the light of this. From 2021 onwards, follow-up surveys will therefore only be sent out 6 to 12 months after the visit.
- Qualitative: Observation of visits and interviews with pupils a couple of times each year.

Having used these different evaluation methods, the Danish Road Safety Council was able to determine that 89% of the pupils knew which the most vulnerable age group in traffic was during the 2017/2018, 2018/2019 and 2019/2020 school years. Moreover, their evaluation showed that during those three school years, respectively 99%, 98% and 98% of the pupils rated the initiative as good or very good.

The results on these objectives together with the achieved reach – 36,612 pupils in 2017/2018, 36,763 in 2018/2019, and 26,185 in 2019/2020[93] – were used as metrics reported to the foundation that supported the council in implementing the LIVE initiative.

The results on the behavioural objective were positive as well, with 94% of pupils in both 2017/2018 and 2018/2019 indicating that they had now taken better care of themselves in traffic as a result of the LIVE visit.

The results of the evaluation of the knowledge objective via a survey undertaken 6 to 12 months following the LIVE visit showed that 86% of the pupils in 2017/2018, 87% in 2018/2019, and 85% in 2019/2020 still knew that they belonged to the age group that is most vulnerable in traffic.

Coupled with the data from the quantitative surveys, the observations and the interviews show how the individual ambassadors are performing. Do they give the pupils the knowledge that is set out in the theory of change one-pager for the "Road Safety LIVE" initiative?[94] Does their education live up to the 5E models' criteria? Is their message clear?

Source: Danish Road Safety Council

[93] The amount of pupils reached during the school year 2019/2020 was lower than usual due to COVID-19 restrictions.
[94] See example 8 for the theory of change one-pager for the "Road Safety LIVE" initiative.

26 EXAMPLE 26: EVALUATION SURVEYS OF THE "ROAD SAFETY LIVE" INITIATIVE

Related Steps	8 Evaluation
Age groups	13 to 16 year olds

This example shows the surveys that the Danish Road Safety Council used to evaluate its "Road Safety LIVE" visits, thereby providing examples of the structure and design of evaluation questionnaires.

8 EVALUATE

Execute your evaluation plan by conducting process and outcome evaluations. Ensure the quality and relevance of your activity over time, and write a final report.

As described in the previous example, the Danish Road Safety Council uses surveys, which pupils and teachers can fill in using their smartphones, to evaluate their "Sikker Trafik LIVE" ("Road Safety LIVE") visits. The first survey for pupils is held immediately after the LIVE visit, the second survey is held 6 to 12 months later.

This example sets out these two surveys for pupils as well as the survey for teachers, translated into English and adapted to a printable version. Besides showing the specific questions the Danish Road Safety Council uses for its evaluation, the surveys for pupils also give insights into how it applies data protection rules as well how it motivates pupils to answer the follow-up questionnaire with the use of a competition. As teachers are not asked for personal information, no question on consent was necessary for the teachers' survey.

Source: Danish Road Safety Council

Pupils

EVALUATION OF THE ROAD SAFETY LIVE VISIT – RIGHT AFTER THE VISIT

Your opinion about the LIVE visit.

Answer the questions about today's LIVE visit so that we can improve our visits.

It is very important that you answer these questions honestly. Your personal answers will not be passed on to others (neither to your teacher nor the speaker).

Please answer the questions alone – without the help of anyone else.

Thanks for your help!

☐ I hereby give consent to the storing and processing of the answers I give in this questionnaire.

☐ I do not wish to give my consent and therefore do not participate in this study [excluded from survey].

What is the name of your school?

_____

Drop-down menu with school names in the online version.

Which Grade are you in?

- ☐ Grade 8
- ☐ Grade 9
- ☐ Grade 10

What do you think about the visit in general?

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Bad
- ☐ Very bad

What was the name of the presenter?

- ☐ Jane Doe
- ☐ John Doe

Drop-down menu with the names in the online version. This section is updated before each visit.

If you have a comment on the personal story, write it here:

_____

Do you remember which organisation(s) are behind the LIVE visit you just had?

- ☐ Write here: _____
- ☐ I don't know

One or more of the following organisations were behind the LIVE visit that you just had. Who do you think it is? (Select one or more).

- ☐ The Danish Road Safety Council
- ☐ The Danish Road Directorate
- ☐ The police
- ☐ The municipalities
- ☐ The National Board of Health
- ☐ Alcohol & Society (NGO)
- ☐ TrygFonden
- ☐ I don't know

Select the 4 things you think are the cause of most killed and injured persons in traffic in Denmark.

- ☐ Driving without a seatbelt in a car
- ☐ Cycling without a bicycle helmet
- ☐ Driving too fast in a car
- ☐ Right-turning trucks hitting cyclists
- ☐ Being inattentive when driving a car
- ☐ Driving illegally on a moped/scooter
- ☐ Slippery roads
- ☐ Driving under the influence of alcohol in a car
- ☐ Bad tyres or brakes on cars
- ☐ I don't know

Every year, many people are killed and seriously injured in traffic. In which age group do you think the risk is the greatest?

- ☐ 0–6 years
- ☐ 7–14 years
- ☐ 15–24 years
- ☐ 25–40 years
- ☐ 41–60 years
- ☐ 61 years and older
- ☐ I don't know

What are the 3 most important things young people aged 14-17 should do to avoid getting injured or killed in traffic?

- ☐ Look in every direction, including behind, to make sure it is safe to move off at intersections.
- ☐ Do not drive an illegally modified ('tuned') moped
- ☐ Tell the driver if they feel unsafe while being driven
- ☐ Always wear a helmet on a bicycle, moped and motorcycle
- ☐ Do not ride on scooters, roller-skates or skateboards
- ☐ Check every day that their bicycle is in good condition
- ☐ Do not sit on the back of a motorcycle
- ☐ Do not drive when the roads are slippery
- ☐ I don't know

Did you get anything out of the LIVE visit?

	Yes	No	I don't know
I have understood the consequences of traffic collisions better			
I want to take better care of myself in traffic			
The visit has made me think about whether I make safe choices in traffic			
I want to tell my parents about the visit			
I want to tell my friends about the visit			
I have been given ideas on how I can say no and intervene if others do something risky in traffic (are inattentive, drive with two persons on a scooter or moped, do not use a seatbelt, etc)			

Do you want to do something different after today when you are in traffic?

- ☐ Yes
- ☐ No
- ☐ I don't know

If yes, what would you want to do differently?

_____

Write here if you have other comments about the LIVE visit:

_____

Finally we have a few questions about you.

What are you?

- ☐ Boy
- ☐ Girl
- ☐ Other (please specify your preferred term: _____)
- ☐ Prefer not to say

In which municipality do you live?

_____

Drop-down menu with all 98 Danish municipalities in the online version.

Do you have or are you in the process of getting your driving licence? (Please select all applicable boxes)

- ☐ Yes, for a car
- ☐ Yes, for a moped/scooter
- ☐ Yes, for another vehicle (truck, tractor)
- ☐ No

Declaration of consent:

May we send you a follow-up questionnaire at a later date?

If so, then you will be entered in an draw to win an iPhone 12 (128GB) worth approximately DKK 7,500. We draw a winner once a year.

We do not pass on your mobile number to others and delete it no more than three months after the survey is completed. Read more about how we process your personal information here:

https://www.sikkertrafik.dk/persondatapolitik

☐ My mobile number: _____

☐ No, I do not wish to receive a follow-up questionnaire and participate in the additional competition

Thank you for your reply! You are now in the competition for three gift cards of DKK 1,000, for which the Danish Road Safety Council draws a winner every six months. In addition, you will receive a follow-up questionnaire within the next year if you decided to participate. If you answer this questionnaire, you are also participating in the additional competition for an iPhone 12 (128GB).

If you want to take part in the competition for the three gift cards, you must enter your mobile number and name:

☐ Your name: _____

☐ Your mobile number: _____

Thanks for your help!

If you like, you can follow the Danish Road Safety Council on Facebook

https://www.facebook.com/sikkertrafik/

Pupils

EVALUATION OF THE ROAD SAFETY LIVE VISIT – 6-12 MONTHS AFTER THE VISIT

6 to 12 months ago, your school had a visit from a person who talked about a personal experience with a traffic collision.

We would really like to hear your opinion on the visit, and whether the visit has given you new knowledge and changed your behaviour in traffic. We use this knowledge to improve our visits.

We will not pass on your name and telephone number to others and will delete your information no more than three months after the survey is completed. Read more about how we process your personal information here: https://www.sikkertrafik.dk/persondatapolitik

- ☐ I hereby give consent to the storing and processing of the answers I give in this questionnaire.
- ☐ I do not wish to give my consent and therefore do not participate in this study [excluded from survey].

Do you remember the visit?

- ☐ Yes
- ☐ No
- ☐ I don't know

If yes, are you still thinking about the visit?

- ☐ Yes, often
- ☐ Yes, once in a while
- ☐ No, but I did right after the visit
- ☐ No
- ☐ I don't know

Write here what you have been thinking about:

_____

Every year, many people are killed and seriously injured in traffic. In which age group do you think the risk is the greatest?

- ☐ 0–6 years
- ☐ 7–14 years
- ☐ 15–24 years
- ☐ 25–40 years
- ☐ 41–60 years
- ☐ 61 years and older
- ☐ I don't know

Select the 4 things you think are the cause of most killed and injured persons in traffic in Denmark.

- ☐ Driving without a seatbelt in a car
- ☐ Cycling without a bicycle helmet
- ☐ Driving too fast in a car
- ☐ Right-turning trucks hitting cyclists
- ☐ Being inattentive when driving a car
- ☐ Driving illegally on a moped/scooter
- ☐ Slippery roads
- ☐ Driving under the influence of alcohol in a car
- ☐ Bad tyres or brakes on cars
- ☐ I don't know

What are the 3 most important things young people aged 14-17 should do to avoid getting injured or killed in traffic?

- ☐ Look in every direction, including behind, to make sure it is safe to move off at intersections
- ☐ Do not drive an illegally modified ('tuned') moped
- ☐ Tell the driver if they feel unsafe while being driven
- ☐ Always wear a helmet on a bicycle, moped and motorcycle
- ☐ Do not ride on scooters, roller-skates or skateboards
- ☐ Check every day if their bicycle is in good condition
- ☐ Do not sit on the back of a motorcycle
- ☐ Do not drive when the roads are slippery
- ☐ I don't know

Have you done anything different because of the visit?

	Yes	No	I don't know	Yes, but I already did it before the visit	Not relevant / I have not been in a situation in which it was necessary
Told friends and/or family not to drive if they wanted to drive after drinking alcohol					
Told friends and/or family when they were driving too fast					
Asked friends and/or family to put on their seatbelt as they had not done so					
Spent two seconds more looking in every direction at intersections as a cyclist					
Used a bicycle helmet (more often)					

Not used my mobile phone in my hands while cycling					
Not driven illegally on mopeds					
Not used my mobile phone in my hands while cycling					
Not driven illegally on mopeds					

Write here if you have done something different because of the visit.

_____

Have you told others about the visit? (Please select all applicable boxes)

- ☐ Yes, my family
- ☐ Yes, my friends
- ☐ Yes, others _____
- ☐ No, I have not told anyone about the visit
- ☐ I don't know

Do you have or are you in the process of getting your driving licence? (Please select all applicable boxes)

- ☐ Yes, for a car
- ☐ Yes, for a moped/scooter
- ☐ Yes, for another vehicle (truck, tractor)
- ☐ No

Do you have other comments?

_____

Thank you for participating!

To learn more about road safety, visit our website or follow us on Facebook.

LIVE

Rådet for Sikker Trafik

EVALUATION OF THE ROAD SAFETY LIVE VISIT – SURVEY FOR TEACHERS

Thank you for answering these questions about the LIVE visit so we can improve our future visits.

School name

_____

Drop-down menu with school names in the online version.

Are you a (Select multiple options if necessary)

- ☐ Teacher
- ☐ Traffic Contact Teacher
- ☐ Other: _____

General questions about the visit

In the following questions, we will ask you about the LIVE visit that you just attended. It is important that your responses are based on this visit, and not any previous visits or your general perception of the LIVE initiative.

What was the name of the presenter?

- ☐ Jane Doe
- ☐ John Doe
- ☐ I don't know

Drop-down menu with the names in the online version. This section is updated before each visit.

Did you attend the LIVE visit?

- ☐ Yes, the whole visit
- ☐ Yes, parts of the visit
  (Please briefly explain which: _____)
- ☐ No

What do you think about the visit in general?

- ☐ Very good
- ☐ Good
- ☐ Neither good nor bad
- ☐ Bad
- ☐ Very bad

This question only appears in the online version when 'bad' or 'very bad' was selected as the response to the previous question.

If you think today's visit was bad or very bad, please explain why

_____

Would you - after today's LIVE visit - recommend it to others?

- ☐ Yes
- ☐ No (please explain why) _____

About the presenter

What was your immediate impression of the presenter?

_____

How good was the presenter at:

	Very good	Good	Neither good nor bad	Bad	Very bad	I don't know
Maintaining pupils' attention?						
Structuring the presentation, so that it was easy for pupils to follow?						
Involving the pupils? (e.g. by asking them questions about their behaviour, attitude and experience in traffic.)						
Giving pupils tools to prevent themselves or others from ending up in a collision?						

Additional comments:

_____

Did the presenter reserve time for discussions with the pupils during the last part of the visit?

- ☐ Yes, but too much time was set aside for this
- ☐ Yes, enough time was set aside for this
- ☐ No, not enough time was set aside for this
- ☐ No, there was no time set aside for this at all
- ☐ I don't know

Did you find that the presenter told their story in a way that related to young people's everyday lives ?

- ☐ Yes, to a great extent
- ☐ Yes, to some extent
- ☐ Yes, to a lesser extent
- ☐ No, not at all
- ☐ Do not know or remember

Is there anything that the presenter could do to improve the visit?

_____

After the visit

The next few questions are about what you want to do after today's LIVE visit.

Are you planning to write to parents that you have had a Traffic Safety LIVE visit?

- ☐ Yes
- ☐ I have already written to the parents about the visit
- ☐ No (please explain why) _____
- ☐ I don't know

After your visit today, would you want to do the following?

	Yes	No	I don't know
Talk to the pupils about the visit			
Teach more about road safety			

Additional comments: _____

We only have two questions left.

Would you want to have a LIVE visit again in the future?

- ☐ Yes
- ☐ No
- ☐ I don't know

Additional comments: _____

Do you have any other comments on the LIVE visit?

_____

Thank you very much for your answers.

When closing the online version of the survey, the respondents are then informed they will be redirected to the Danish Road Safety Council's webpage on other teaching material for the LIVE initiative's target age group.

Rådet for Sikker Trafik LIVE

27 EXAMPLE 27: QUESTIONS FOR THE CREATION OF A CZECH TRAFFIC EDUCATION METHODOLOGY

Related Steps

- 8 1.2 – The Activity Level
- 5 5 - Pre-Testing
- 8 8 – Evaluation

Age groups

Kindergartens

This example illustrates how the Czech Transport Research Centre (CDV) used questionnaires during the development of their traffic education methodology for kindergartens. It also contains a list of questions for the creation of a functional methodology for traffic education.

The Czech Transport Research Centre (CDV) cooperated with 34 nursery schools from the South Moravian Region during the development of a traffic education methodology for kindergartens. Using a questionnaire, a CDV representative surveyed which topics in traffic education the teachers would appreciate and which activities they should be focused on – movement, resting activity, music, art.

Based on the survey's results, individual activities with a traffic theme were designed and the CDV representative started to test the activities in practice when working with children. In this way, the functionality and usability of all activities from the methodology could be tested.

Verification of whether the proposed activities had any effect on children took place after six months. This was done through questionnaires for the children, which they filled out together with their teachers.

In the framework of the traffic education methodology for the after-school care and other extracurricular facilities, the CDV cooperated with the primary school, where teachers who staff the after-school care sessions carried out activities from the methodology with the children and then completed the questionnaire "How they worked with the traffic education methodology".

Questions that the CDV used for the creation of their functional methodology for traffic education are set out on the following pages. Answering these questions will guide you and help you focus during the development process of the activity. Several questions in the list may furthermore serve as inspiration for questions to be asked to teachers during the pre-testing and evaluation questionnaires.

1) For whom is the methodology/handbook intended?
   - ☐ For teaching staff
   - ☐ For all those who work with children and young people in any area

2) Can anyone work with the methodology, or just an expert – educator with vocational education for teaching and training in the field of traffic education, or one who has undergone training how to work with the methodology?
   - ☐ Anyone
   - ☐ An expert

3) Are the individual topics sufficiently, clearly, and intelligibly explained?
   - ☐ Yes
   - ☐ No

4) Does the material correspond to the current trends?
   - ☐ Yes
   - ☐ No

5) Is the information from the methodology somewhere searchable/verifiable?
   - ☐ In laws and decrees
   - ☐ In expert educators' forums
   - ☐ Methodological support for educational institutions/capacities

6) What is the main objective of the material?
   - ☐ To pass on knowledge
   - ☐ To show examples in practice
   - ☐ To provide specific activities

7) How time consuming are the activities?
   - ☐ 10 minutes
   - ☐ 20 minutes
   - ☐ 30 minutes
   - ☐ More than 30 minutes

8) Are individual activities focused only on one topic or do activities link and teach multiple topics at the same time?
   - ☐ On only one topic
   - ☐ On multiple topics

9) Can the activities be used in all age categories? (You can mark multiple categories)
   - ☐ All age categories
   - ☐ Only 3 to 6 years old
   - ☐ Only 7 to 9 years old
   - ☐ Only 10 to 12 years old
   - ☐ Only 13 to 15 years old
   - ☐ Only 15 to 18 years old

10) Are special tools needed to work with the methodology?

- ☐ Yes
- ☐ No
- ☐ Just the usual tools available in the school

11) How costly/expensive are the tools needed to work with the methodology?

- ☐ No costs
- ☐ Costs in line with educational facilities (pupils can produce them themselves)
- ☐ Activities can be realised either with or without tools

12) Can the activities also be done outside the premises of the kindergarten, primary school, secondary school?

- ☐ Yes
- ☐ No

13) Do the topics follow on from curricular documents in schools or other educational establishments?

- ☐ Yes
- ☐ No

14) Do the activities involve the use of images to illustrate what is required, such as video or graphic solutions, or others?

- ☐ Yes
- ☐ No
- ☐ Others, namely _____

15) How can the activities included in the methodology be practically verifiable/verified by the target group (children/pupils/students)?

- ☐ In the form of tests
- ☐ By means of test questions and verification of behaviour in practice

16) Was the methodology developed based on theoretical knowledge, or also on practical experience?

- ☐ Only theoretical knowledge
- ☐ Theoretical knowledge and practical experience

17) Was the methodology verified via pre-testing?

- ☐ Yes
- ☐ No

ANNEX. DEVELOPMENTAL PSYCHOLOGICAL REQUIREMENTS AND ROAD USER CHARACTERISTICS OF CHILDREN

Psychological development of children

To ensure that children can move safely and injury-free on the road, they need a range of abilities that they only acquire with age. Since physical, mental and social development differs from child to child, any ages given in this annex should only be regarded as indicative. Child development depends heavily on the actual experiences a child has or is allowed to have on the roads.[95] Accordingly, the development of road use skills is impeded or delayed if, for example, children are not given the opportunity to actively use the roads as pedestrians (perhaps because parents drive them everywhere). It is known that only those children who are allowed to gain real experience on the road are able to develop appropriate road use behaviour and an awareness of the risks.[96]

Sensory skills

While basic hearing and eyesight are already well developed in young children, more complex tasks (including those necessary for using roads safely) require a more differentiated ability to see and hear, which only develop with age and corresponding experience. Accordingly, children master directional hearing and noise differentiation under simple conditions from about five years of age but only succeed in doing so under difficult conditions, e.g. the presence of background noise, from about the age of 9 or 10. Similarly, they only master object recognition or the perception of size constancy at different distances from objects from about the age of six.[97]

Motor skills

Children also acquire their basic motor skills in infancy. Alongside the individual maturation process, "training" these skills is decisive for their development.[98] Consequently, those children who only have limited opportunity to practise such skills are at a disadvantage and thus cannot realise their full potential. Since motor skills are an important basis for road use, the collision risk rises in the event of corresponding deficits.[99]

Children generally have a stronger urge to move than adults; they run and hop around on pavements and roads. However, they are only able to correctly assess their own physical abilities from about the age of eight. Up to that age, their ability to coordinate their behaviour and ride a bicycle safely is also not adequately developed, and it is thus not recommended that they ride their bicycles on the road without supervision. Children do not develop the necessary skills to do so until the age of 10 to 14 years.

[95] Limbourg et al (2000), Mobility in Childhood and Youth.
[96] Schützhofer et al (2015), New Approaches in Traffic Psychology Road Safety Work for Children.
[97] Uhr et al(2017), Road Safety for Children.
[98] Ibid.
[99] Kunz (1993), cited from Limbourg (1997a), Children in Traffic. Approaches to Raising Road Safety for Children.

Cognitive abilities

Neither the sensory nor the motor skills of children can be considered in isolation.[100] Both can only be adequately applied with the help of cognitive abilities like attention, perception, memory, language, thought and problem solving. Particular importance is attached here to attention and the executive functions, which steer cognitions and actions.

Children's attention becomes increasingly selective, aligned and focussed during their primary school years. They learn to focus their attention on the important aspects of a given situation and also become increasingly able to flexibly adapt it to the demands of the task at hand.[101] Only from the age of about eight are children also able to focus their attention on traffic for a longer period of time (e.g. for the duration of their journey to or from school). This ability is not fully developed until they reach the age of 13 or 14. In general, however, even 14 year olds find it difficult to ignore irrelevant attractions (e.g. smartphones).

Perception and risk assessment

Children's awareness of "safety" and "danger" develops in three stages:[102]

1. At the age of 5 to 6 years, children already have an acute awareness of danger. They are able to recognise whether they are currently in danger or in safety.
2. An anticipatory awareness of danger, with which children can anticipate that they might run into danger, develops around the age of eight.
3. Prevention awareness, which allows children to develop and apply preventive behaviour, does not develop until around the age of 9 or 10.

Alongside age, the personal experiences and education at home also play a role in the development of safety-oriented behaviour.[103] To teach (pre-)schoolchildren preventive measures, you have to give them concrete and situation-specific instructions (e.g. "If the traffic lights at the junction are not working, cross the road at the next zebra crossing." Or "You must wear a helmet when you are riding your bike.")

Many children are not yet able to carry out an efficient visual search when they start school (5 to 7 years of age) because they still do not have a concrete perception of potential dangers.[104] They therefore base decisions to cross the road on visibility alone (i.e. if they can see a car from their position). Other points of reference like confusing situations, blind curves or complex road junctions are not taken into account in the decision.

In general, children of primary school age also often focus their attention on aspects of the situation that have nothing to do with the traffic itself. 9 to 10 year olds therefore still find it difficult to cross a road at a location without corresponding infrastructure.

To cross a road safely, children should not only be able to carry out the necessary visual search, they should also be able to assess speeds and distances fairly well.[105] 3 to 4 year olds usually do not yet have the ability to distinguish between stopped and moving vehicles. Likewise, few 6 year olds are able to correctly assess distances (e.g. of approaching vehicles). This ability does not develop until about the age of 8 to 10 and continues to improve until the child reaches young adulthood.[106]

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[100] Uhr et al(2017), Road Safety for Children.
[101] Berk (2011), Developmental Psychology.
[102] Limbourg (1997a), Children in Traffic. Approaches to Raising Road Safety for Children.
[103] Limbourg (1997b), Risk Cognition and Prevention Comprehension in 3-15 Year Olds.
[104] Barton (2006), as cited in Schlag et al. (2018), Holistic Road Safety Education for Children and Youth.
[105] Uhr et al.(2017), Road Safety for Children.
[106] Ibid.

Children are not able to subjectively change perspectives until about the age of nine and are even older (about 11) before they can manage a reciprocal change of perspectives.[107] In other words, primary school children still do not understand, for example, that vehicles require a braking distance. They assume that vehicles can stop immediately because that is what they themselves can do.

"Youth egocentrism" is an aspect that emerges in adolescence. Given their strong egocentricity, adolescents are often not able to realistically assess dangers or do not link them with themselves. The appetite for risk also grows at this age: adolescents like to test their own limits (whereby boys generally have more appetite for risk than girls) and frequently overestimate their own abilities. These are the reasons why adolescents are often involved in road collisions despite the fact that their cognitive and concentration abilities are already fully developed.[108]

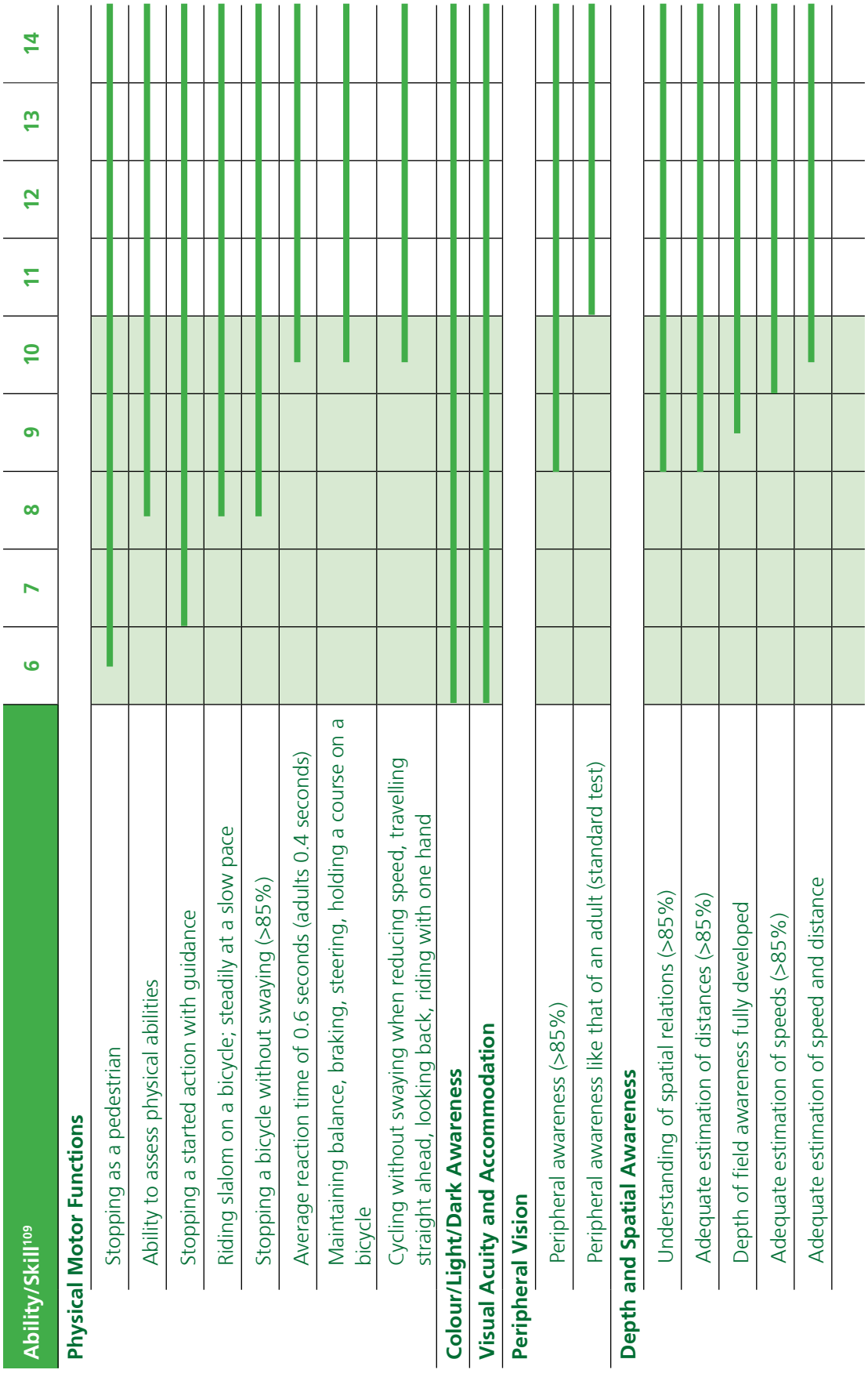
Different skills and ability: overview

The tables on the next pages provide an overview of the various abilities that develop with age. The information is taken from Schützhofer et al (2015; see also Uhr, 2017). The individual dimensions listed are based on the findings of different studies.

The bars in the table show the start of the age from which an ability is developed – usually to more than 85%. The underlying studies indicate both precise points in time as well as age spans. If the bar starts in the middle of a year, a precise age is given. If the bar starts between two years, an age span (e.g. 6 to 7 years of age) is defined. The diagram is designed to provide a rough overview and should be seen as a simple representation. It should also be noted that while some skills and abilities are already acquired at a young age, they do not develop to a level that is comparable with that of an adult until about the age of 14.

[107] Schützhofer et al (2015), New Approaches in Traffic Psychology Road Safety Work for Children.
[108] Limbourg (1997b), Risk Cognition and Prevention Comprehension in 3-15 Year Olds.

Table 1 - Awareness and Reaction Dimensions – Overview of Development and Age (based on Schützhofer et al, 2015)



[109] Excerpts from Schützhofer et al (2015), New Approaches in Traffic Psychology Road Safety Work for Children; citations to the individual results in Schützhofer et al

Ability/Skill[109]	6	7	8	9	10	11	12	13	14
General Hearing, Directional Hearing and Noise Differentiation Ability									
Adequate interpretation of sounds									
Directional hearing works									
Makes regular use of hearing on the roads									
Recognises the signal direction									
Attention (Selective, Duration, Shared, Distractibility)									
Can concentrate for long periods of time									
Selective attention is developed									
Ability to Adopt Other Perspectives									
Subjective adoption of perspectives									
Reciprocal adoption of perspectives									
Thought									
Can distinguish between left and right									
Social and Emotional Competence									
Understanding for ambivalent emotions									
Risk Awareness									
Selects the safest route (and not the shortest)									
Recognises a safe place to cross the road without training (>85%)									
Has preventive awareness of dangers									
Awareness and anticipation of risks (>85%)									
Children can recognise dangers from their own perspective and that of adults. Differentiates between coping and avoiding strategies when handling danger									

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THE 5E MODEL

Engagement

- ☐ Do you motivate and create curiosity and interest?
- ☐ Do you create a need for learning?
- ☐ Do you identify the pupils' prior knowledge and attitudes?
- ☐ Do you link the learning material to what the target group already knows?
- ☐ Do you focus on the learning objective(s)?

Exploration

- ☐ Do you create a common learning platform?
- ☐ Will the pupils investigate, make decisions, gather information, interpret, and ask questions?
- ☐ Do you vary methods?
- ☐ Do you guide the pupils and support building a bridge between prior knowledge and new knowledge?

Explanation

- ☐ Can the pupils communicate their knowledge?
- ☐ Do you introduce new words, concepts, models, give examples and explain?
- ☐ Do you challenge existing understandings of concepts?

Elaborate

- ☐ Do you make demands on the pupils to proceed beyond their current level, and find better and more comprehensive explanations?
- ☐ Do you ask new questions to explore: What do we know? How can we find out more? How can this be explained?
- ☐ Do you apply knowledge in the field to new contexts?

Evaluation

- ☐ Do you have a plan for self-evaluation, ongoing evaluation and final evaluation?
- ☐ Do you reflect on how and why different activities engage and motivate?
- ☐ Do you evaluate prior knowledge and learning processes in relation to the learning objectives?
- ☐ Do you provide feedback on arguments, explanations and application?
- ☐ Do you evaluate learning outcomes?

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