Better Internet for Kids

Evidence inspiring practice:

Creating, pilot-testing, and evaluating evidence-based online safety interventions and awareness-raising campaigns

Good practice guide

March 2024

European Schoolnet

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University of Antwerp

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Note: This report has been authored by researchers at Antwerp University. Please cite it as: Helsen, K., Walewijns, D. & Walrave, M. (2024) Evidence inspiring practice: Creating, pilot-testing and evaluating evidence-based online safety interventions and awareness-raising campaigns. Better Internet for Kids (BIK) Good practice guide. Belgium, Flanders: University of Antwerp, Department of Communication Studies, Media & ICT in Organisations (MIOS).

The publication of this report has been coordinated by European Schoolnet on behalf of the European Commission in the framework of the EC's Better Internet for Kids (BIK) initiative, with funding provided by the Digital Europe Programme (DIGITAL).

1. About this guide

As part of the Better Internet for Kids (BIK) Phase 5 project, this guide focuses on how Safer Internet Centres (SICs), European Consumer Centres (ECCs), and other organisations concerned with children's and young people's safer internet use can create, pilot-test, and evaluate their online safety interventions and campaigns in an evidence-based manner. In other words, this guide aims to inspire awareness centres to build their online safety interventions and campaigns, as well as to evaluate the results of their interventions and campaigns. SICs sometimes have limited resources and time for preparing and pre-testing communication campaigns and conducting impact research. Therefore, this guide offers a practical step-by-step approach so they can create more evidence-based outputs on their own or in collaboration with partners. This guide is set up in a modular way to allow centres to pick and choose from a range of practical guidance and insightful resources in a way that matches their existing expertise and associated additional information needs.

This guide was developed based on a brief survey among the European network of Safer Internet Centres, which was conducted to determine the extent to which SICs and, in particular, their awareness centres, already adopt evidence-based practices. The results are based on the responses of 20 SICs (the total number of SICs was 26 at the time of data collection). The results show that SICs focus on a wide range of topic areas which are reflected in numerous interventions and/or campaigns they develop each year where the main target groups are teachers/educators, pre-adolescents, and adolescents. Furthermore, an already significant amount of 90 per cent of SICs evaluate the effectiveness of their campaigns and interventions. When looking at evidence-based practices, 95 per cent of SICs deploy some form of evidence-based approaches. The most used resources and insights thereby are drawn from in-house research and information from e-safety organisations. Finally, the results show that SICs would like to have additional support for adapting interventions for different communities, target

groups and settings, as well as using qualitative, co-creation, and quantitative methods.

The guide consists of several sections, starting with a literature review (section 2.1) that explores and defines the term 'evidence-based' and how it can be implicated in developing campaigns and interventions. In addition, the section outlines various models and techniques for developing evidence-based practices. These are then discussed in the subsequent section (section 2.2), followed by the outline of a step-by-step approach based on the Intervention Mapping Protocol (IMP) (section 3). Finally, a conclusion summarises the key insights (section 4).

In addition, the guide contains a certain number of terms, which are explained throughout and drawn together in the form of a lexicon (Annex I). To provide more depth to specific sections, 'info boxes' can be found throughout the guide. These discuss theories, techniques, and concrete examples more extensively. In addition, some contain useful articles and reports as suggested further reading, or other online resources for more information. In Annex II, all relevant information, references and URLs mentioned in these info boxes are summarised.

1.1 How to use this guide

This guide aims to inspire Safer Internet Centres to build on the wealth of their existing knowledge and expertise, and new insights and evidence, when creating and evaluating online safety interventions and campaigns. In doing so, the guide puts forward the Intervention Mapping Protocol (IMP) methodology. This particular approach allows users of the guide to utilise selected parts outlined in detail in section 2 below in a modular way. This means that the IMP methodology can be viewed as a toolkit from which users can pick and choose the tools that are useful and relevant to their respective use cases. In this way the guide, including its respective sections and practical steps outlined below, does not only help to improve evidence-based practices when followed through from the first to the last step. More so, it can be selectively incorporated in intervention and campaigning procedures and processes already in use, from the development stage, during pilot-testing and roll-out, right through to the evaluation stage.

2. Evidence-based practices

2.1 'Evidence-based'

2.1.1 Definition

One of the tasks of an awareness centre is to develop campaigns and interventions to raise the awareness of various target groups (children, adolescents, parents, teachers, etc.) on online safety, inform them on topical issues, and develop their competences to prevent or cope with online risks (Digital Strategy, European Commission, 2023). In recent years, the calls for making these campaigns and interventions more evidence-based have increased. 'Evidence-based' means that practices, interventions, and campaigns are conducted and drafted based on information derived from objective evidence. Evidence-based practice involves combining professional expertise with evidence from the (scientific) literature (Cambridge Dictionary, 2023; Jensen & Gerber, 2020). However, there are different layers in evidence-based practice (see section 2.1.2).

The term 'evidence-based' has its origins in the field of medical sciences but is increasingly finding its way into other disciplines, and there have been increasing arguments to rely more on evidence as the basis for implementing educational programmes and practices (Slavin, 2008).

2.1.2 Layers of evidence-based practices

As explained above, evidence-based campaigns and interventions are rooted in the utilisation of information based on/or derived from objective evidence, which typically is gained through scientific research (Cambridge Dictionary, 2023; Jensen & Gerber, 2020). Working in an evidence-based manner can be approached as a pyramid with different tiers. This pyramid shows how SICs can use different resources to develop their interventions and campaigns, whereas the top of the pyramid can be considered the best evidence-based practice possible.

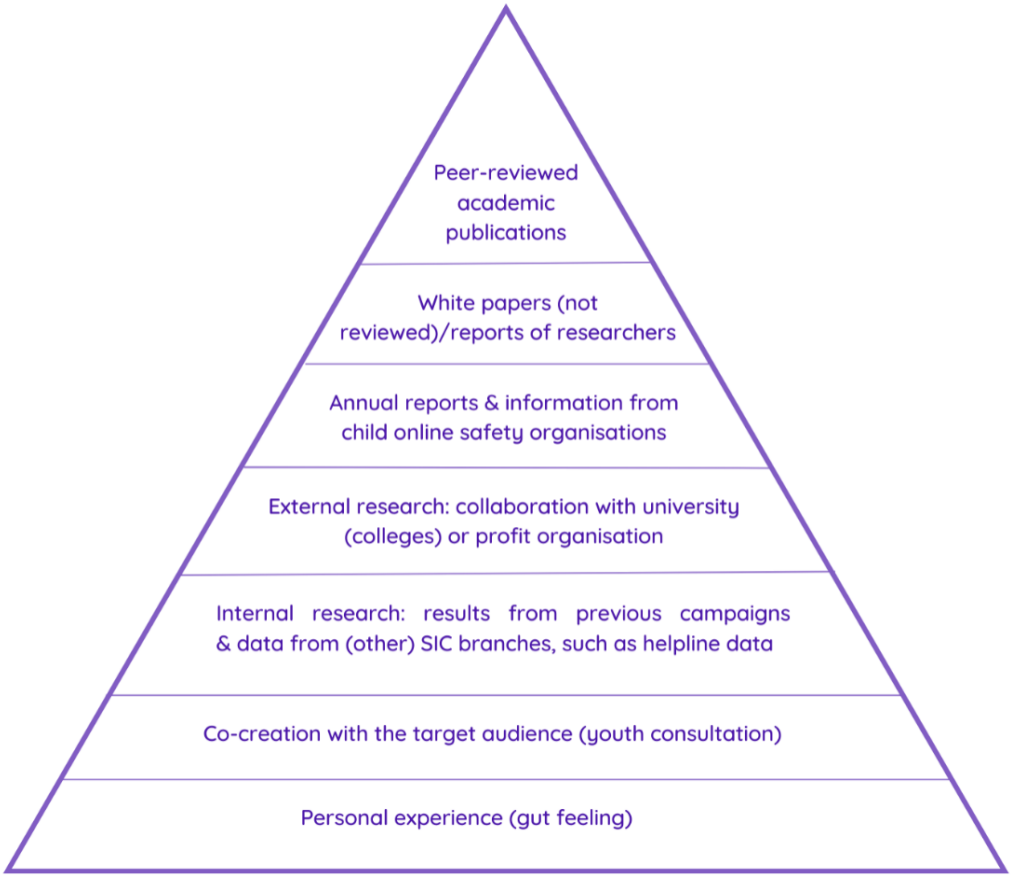

Figure 1: Pyramid of different tiers of evidence bases

As mentioned above, the results of the survey show that SICs would like to have more information on quantitative, qualitative, and co-creation research. Info box 1 below provides more information on these three types of methods.

Info box 1: quantitative, qualitative, and co-creation methods

Quantitative research:

Quantitative research is often characterised by research data presented as numbers so that statistics can be applied to it (Brug et al., 2022). Samples are often larger than in qualitative research and it is seen as more representative of the population. In other words, results are more likely to be generalisable to an entire population. It also focuses on objectivity and systematics (Queirós et al., 2017).

The two most used methods when conducting quantitative research are:

1. **Experiment:** An experiment is an organised and planned investigation in which hypotheses are tested, questions are answered, and new facts may be discovered (Casler, 2015).

   A first important element in an experiment is that participants are randomly assigned to a condition. Thus, an experiment often consists of two groups: a control group and an intervention group. By adding participants randomly, it can be assumed that the two groups are equal to each other. A second important element is that a manipulation takes place in the intervention group, which does not take place in the control group. By doing a pre-measurement and a post-measurement, the effect of an intervention can be found. An experiment can take place in the field or in a lab (Brug et al., 2022; Queirós et al., 2017).

2. **Survey:** A survey can be defined as: "*the collection of information from a sample of individuals through their responses to questions*" (Check & Schutt, 2012, p. 160). A survey uses a structured set of questions to collect data directly from the target group (Queirós et al., 2017).

Qualitative research:

Qualitative research is often not characterised by numbers, but rather seeks to understand the "how's and whys" of a phenomenon or problem (Brug et al., 2022). The aim of qualitative research is to obtain in-depth information to analyse the different dimensions of the problem or phenomenon. It is often used in function of motives, opinions, beliefs, and values related to deeper processes and relationships (Queirós et al., 2017).

There are a number of methods that SICs can use when conducting qualitative research:

1. **Field research:** This method is used to learn in depth about people and processes. As the name suggests, data collection is carried out in the field

(e.g., among adolescents, teachers, etc.) within a specific time period (Queirós et al., 2017).

2. **Focus groups:** Focus groups are used when studying a complex behaviour, where the researcher can engage in conversation with respondents in a non-threatening environment (Krueger & Casey, 2015; Queirós et al., 2017). The aim is to create a conversation among the participants (usually between six and twelve people) on the topic at hand. The number of focus groups conducted depends on whether data saturation (i.e., no new topics come up) occurs or not. As long as new topics come up, new focus groups can be organised (Bartholomew et al., 2011).
3. **(Semi-)structured interviews:** In a (semi-)structured interview, respondents are asked about previous experiences and/or hypothetical situations. Often, a guideline is drawn up that the interviewer follows, allowing answers between respondents to be compared (Queirós et al., 2017).
4. **In-depth interviews:** This is an unstructured, immediate, and personalised interview with each respondent. It usually starts with a general question after which the respondent can talk freely about the topic (Queirós et al., 2017).
5. **Retrospective think-aloud method:** This method allows respondents to perform tasks silently and then comment on their performance (Thamer et al., 2015).

Co-creation research:

Co-creation is a technique where individuals from the target group, as well as stakeholders, can be involved in the process (Benson et al., 2021). It refers to the whole process where different stakeholders (both from inside and outside the organisation) are involved in the different phases of the intervention (Lee et al., 2018). A method that is often used is workshops to make new discoveries or

develop new ideas that can subsequently be used in an intervention (Benson et al., 2021).

Want to know more?

- **Qualitative Methods Overview (2011)**

  This report, initially intended for social care research, offers some more information on what qualitative research precisely means and different methods that can be used (i.e., interviews, focus groups, observation, etc.) (Moriarty, 2011).

- **Focus groups: A Practical Guide for Applied Research (2015)**

  This book offers readers a useful overview of the steps to follow when using focus groups as a method. It also discusses various tips and pitfalls (Krueger & Casey, 2015).

- **Strengths and limitations of qualitative and quantitative research methods (2017)**

  This paper provides a useful overview of seven qualitative and five quantitative methods, discussing advantages and disadvantages of each approach. It is a good starting point to see which methods may be useful (Queirós et al., 2017).

- **Interviews and focus groups in qualitative research: an update for the digital age (2018)**

  This paper discusses two qualitative methods, namely interviews and focus groups and how they can be used in practice. An advantage of this paper is that it looks at the methods from a digital age point of view, for example, how video chat and online forums can influence the data process (Gill & Baillie, 2018).

- **Qualitative Analysis on Large Scale Social Media Data for Adolescent Online Safety (2019)**

This paper examines online risks among adolescents in order to develop systems to help them use the internet more safely. It is a good example to learn more about qualitative data analysis on social media (Razi & Wisniewski, 2019).

2.2 Models and techniques evidence-based practices

There are several models and techniques that SICs can use to take an evidence-based approach. This guide takes a closer look at the Intervention Mapping Protocol (IMP) (see section 2.2.3 below). To demonstrate that this is not the only possible model, the following section briefly discusses some alternatives, with some suggested further reading and practical information in info boxes.

2.2.1 PRECEDE-PROCEED

The PRECEDE-PROCEED-model can be viewed as the predecessor of the IMP, as the first step of IMP (i.e., identifying the problem or behaviour) is based on it. It can be seen as a theory-guided planning framework that provides a clear 'blueprint' to follow. A similarity between this model and the IMP is that they both start with a problem in a specific population (Diclemente et al., 2009). This method is based on the premise that behaviour change is generally voluntary and that interventions are more likely to be effective if they are planned and evaluated. Active participation of both those responsible for implementation and those who will be impacted by the intervention is crucial (Brug et al., 2022).

The model can be divided into two main steps, with the PRECEDE-phase representing the preparation stage and the PROCEED-phase representing the implementation stage. The PRECEDE-phase starts with looking at the causes of the problem. This problem analysis can be conducted with a minimum or maximum of resources. This means that SICs can rely on existing research or conduct their own (e.g., limited qualitative study of the target group(s) or a brief survey). They are able to perform this research on their own or in collaboration with research

organisations. Many reports already exist on e-safety issues on which SIC's campaigns and interventions can rely (see info box 2 below).

After the problem analysis, three types of factors are identified that can influence the behaviour:

a. **Predisposing factors:** these are a person's knowledge, attitudes, behaviours, beliefs, and values before the intervention, and influence whether the person is open to make a change.

b. **Enabling factors:** these are the environmental or community factors that support and assist behaviour change, and can have a positive effect on a person's willingness to change.

c. **Reinforcing factors:** these are the factors that reinforce or positively influence the desired behaviour change.

The PROCEED-stage consists of the development of the intervention based on the first phase. After this, the intervention is implemented and evaluated (Azar et al., 2017; Crosby & Noar, 2011; Diclemente et al., 2009; Ransdell, 2001; Schiavo, 2014).

Info box 2: reports and more information on PRECEDE-PROCEED

Reports on e-safety:

- **EU Kids Online: 2020 survey results from 19 countries**

  This report summarises the results of a survey conducted among 9- to 16-year-olds from nineteen European countries. It provides an overview of the key insights regarding access, skills, risks and opportunities, and the social context (Smahel et al., 2020).

- **EU Kids Online: Children's experiences with cyberhate (2020)**

  This report by EU Kids Online focuses on cyberhate exposure among 11- to 17-year-olds from ten European countries (Machackova et al., 2020).

- **EU Kids Online: Young people's experiences with sexual messages online: prevalence, types of sexting and emotional responses (2021)**

The focus of this report is on sexual communication taking into account the personal use of mobile technologies, increasingly younger age of children using the internet, and the new technologies available. The survey was conducted in eighteen countries with adolescents aged between 12 and 16 as target group (Barbovschi et al., 2021).

- **UNICEF: Child Safety Online: Global challenges and strategies (2011)**

  This report by UNICEF focuses on the global challenges and strategies of child abuse (UNICEF & Innocenti Research Centre, 2011).

- **UNICEF: Evaluating online safety initiatives (2022)**

  The aim of this research was to establish a framework to strengthen the evaluation of online safety in order to design more effective programmes (UNICEF & Young & Resilient Research Centre, 2022).

- **Social Research Centre: The 2022 National Online Safety Survey – summary report**

  Through an online survey, Australian adults, parents, teachers/carers/supervisors, and children aged 8 to 17 were surveyed on online habits, perceived harm online, actions taken, discrimination, and perpetrators (The Social Research Centre, 2022).

- **DQInstitute: 2020 Child Online Safety Index**

  This report provides a broad overview of online safety rates in different countries (DQInstitute, 2020).

- **WHO: Prevention of online violence against children (2022)**

  This report focuses on two specific forms of online violence, namely child sexual abuse and sexual image abuse, and how they are an increasing concern (World Health Organization, 2022).

- **Pew Research Center: Parenting Children in the Age of Screens (2020)**

This report from Pew Research focuses on the role of US parents in the age of screens (Auxier et al., 2020).

- **Thorn: The Role of Caregivers: Safeguarding & Enhancing Youth Resilience Against Harmful Sexual Encounters Online (2022)**

  This research focuses on caregivers and more specifically on their attitudes, perceptions, and behaviours and how these affect children about sharing and re-sharing self-generated child sexual abuse material (Thorn & Benenson Strategy Group, 2022).

- **GAGE: Young adolescents and digital media: uses, risks and opportunities in low- and middle-income countries: a rapid evidence review (2017)**

  This report focuses on adolescents' use of digital media and the practices, opportunities, and risks involved. This was examined in low-and middle-income countries (Livingstone et al., 2017).

More information on PRECEDE-PROCEED:

The following books and scientific article are a great addition to learn more about the PRECEDE-PROCEED-model.

- Book: Emerging Theories in Health Promotion Practice and Research (2009)
- Book: Health Communication: From Theory to Practice (2014)
- Book: Health Behavior: Theory, Research and Practice (2015)
- Scientific article: What is a planning model? An introduction to PRECEDE-PROCEED (2011)

2.2.2 Double Diamond

The Double Diamond model consists of four steps and takes a serial approach to the design process (van Essen et al., 2016). This is a model that SICs can use to

develop a framework, for example, for schools. However, it has been less applied to e-safety topics, but can still be useful. The Double Diamond has previously been applied to develop a framework for schools to improve children's physical activity levels (Daly-Smith et al., 2020). This case example is outlined in info box 3 below.

The four steps of the model are:

1. **Discover:** this is the start of the project where the context is explored in depth. This involves techniques to understand the target audience, through desk research, interviews, surveys, etc.
2. **Define:** in this phase, insights are created. Based on the data and information collected during the first step, conclusions are now drawn and the problem can be defined.
3. **Develop:** in the third phase of the model, ideas and prototypes (i.e., a first or preliminary version of a campaign or intervention) are developed, for instance, by brainstorming with the team to come up with ideas, compare them with the problem, and convert the best ideas into campaign or intervention prototypes.
4. **Deliver:** in the last step the designed prototypes are tested, modified, and finalised (Broberg & Grøn, 2022; Ferreira et al., 2015).

Info box 3: case example Double Diamond

In this example of Daly-Smith et al. (2020), the Double Diamond approach was used to develop a whole-school physical activity (PA) framework to ensure that children exercise 30 minutes at school and 60 minutes daily. They divided the Double Diamond into different phases, following the four steps (discover, define, develop, and deliver), where each phase consisted of a few tasks. Furthermore, they worked with a same stakeholder group (SSG) (e.g., teachers, researchers, public health specialists, etc.) and a mixed stakeholder group (MSG) (a mix of individuals from the SSG). The four phases were:

1. **Discover:** SSG & MSG identify and describe the aspects of a whole-school PA system.

2. **Define:** each MSG creates a whole-school PA framework using whiteboard and pens.
3. **Develop:** each SSG displays their draft framework for debate and feedback from the other groups and each MSG looks at the feedback of their own draft.
4. **Deliver:** the draft is reworked by each MSG and individuals vote to choose for the final framework.

More information on this example can be found at:
https://link.springer.com/article/10.1186/s12966-020-0917-z

2.2.3 Intervention Mapping Protocol

The Intervention Mapping Protocol (IMP) provides developers of campaigns or interventions with a framework for effective decision making at every step of the development process. Planning, empirical evidence, and sound theories are essential aspects of the IMP. It is a framework that offers a systematic process and comprehensive protocol to make effective decisions step-by-step for the development, implementation, and evaluation of interventions or campaigns. It consists of six consecutive steps that SICs can follow (Bartholomew et al., 1998; Bartholomew et al., 2011; Brug et al., 2022; Fernandez, Ruiter, et al., 2019; Herrijgers et al., 2022; Pirta-Dreimane et al., 2022). In doing so, they can get started on their own, but they can also collaborate with partners, depending on the resources available.

The model has its roots in the field of (health) education, but its principles have since been extended to encompass e-safety subjects, such as cyberbullying, cybersecurity, media literacy, sexual education, and so on (De Craemer et al., 2014; DeSmet et al., 2016; Herrijgers et al., 2022; Kim, 2021; Pirta-Dreimane et al., 2022; Viswanath, 2015).

As demonstrated above, various models and techniques are available for the design, testing, and evaluation of evidence-based campaigns and interventions.

For the purpose of this guide, the focus is on the IMP approach for a range of reasons. First, the IMP provides a system to integrate theory, scientific findings, and information gathered from the target audience to set up an effective intervention (Bartholomew et al., 1998). Second, because it is building on an iterative process of reviewing and including evidence, it is more flexible and can increase both the effectiveness and efficiency of interventions and campaigns (Pirta-Dreimane et al., 2022). Last, it has already proven its usefulness in several studies and concrete interventions on topics closely related to online safety (De Craemer et al., 2014; DeSmet et al., 2016; Herrijgers et al., 2022; Kim, 2021; Pirta-Dreimane et al., 2022; Viswanath, 2015).

3. Intervention Mapping Protocol (IMP): a step-by-step approach

As mentioned above, the IMP approach consists of six steps to follow in an iterative manner (Bartholomew et al., 1998; Bartholomew et al., 2011; Brug et al., 2022; Fernandez, Ruiter, et al., 2019; Herrijgers et al., 2022; Pirta-Dreimane et al., 2022). SICs may have different levels of resources at their disposal, but by offering a step-by-step approach, they can attain satisfactory campaign and intervention outcomes with limited assets. Moreover, with the IMP approach, SICs can choose to partner with research centres and other institutions to collaborate in developing specific aspects of the IMP. A visualisation of the six steps to follow can be found below (figure 2).

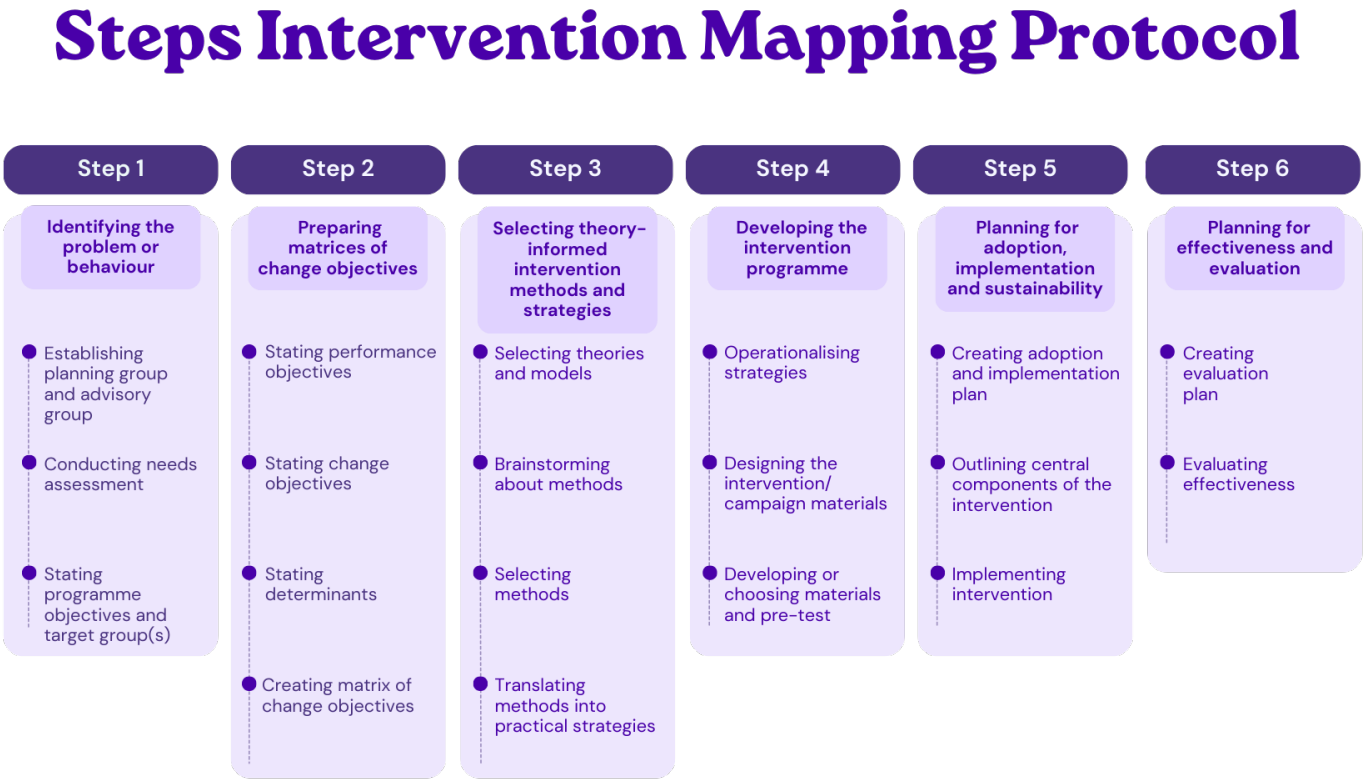

Figure 2: Steps Intervention Mapping Protocol

3.1 Step one: identifying the problem or behaviour

The first step of the IMP consists of three tasks that SICs can accomplish to identify the problem, cause or behaviour they want to address with the intervention or campaign (De Craemer et al., 2014; Herrijgers et al., 2022).

3.1.1 Establishing a planning group and an advisory group

The first task is establishing a planning group and an advisory group. A planning group can consist of SIC team members and, for instance, research partners, while an advisory group can consist of relevant stakeholders in the field. A planning group is often more involved with decision-making and actively participates in the intervention, while an advisory group is consulted when expertise is needed on a particular topic (de Lijster et al., 2019; Herrijgers et al., 2022). The overall goal is to bring together people with different areas of expertise to increase the totality of expertise and knowledge, to ensure sound support during the process. Depending on the resources available, SICs can choose to assemble this planning group and/or advisory group internally or rely on (an) external organisation(s). In this way, SICs can organise interviews or discussions with the relevant stakeholders. These can be with employees within the organisation who are specialised in different fields, or if more resources are available, experts from outside the organisation can be called upon (Bartholomew et al., 1998; Herrijgers et al., 2022). If time, resources and/or expertise are available, a Delphi method can be a good and useful method to poll a panel of internal group members or external experts and look for approaches (Bartholomew et al., 2011; Brady, 2015; Landeta, 2006). For more information see info box 4 below.

Info box 4: Delphi method

If a SIC has the resources, they can choose to use the Delphi method, which is aimed at reaching consensus on a problem by surveying approximately ten to fifteen experts (Bartholomew et al., 2011).

- The method usually consists of three rounds. During the first round, experts are asked a few questions. In the second round, the first round is analysed and clarifying questions are asked. In the last round, the aim is to obtain consensus.
- These rounds are anonymous, where the expert can remain anonymous, or the answers are anonymised. This way, answers cannot be influenced by each other.
- The method does not require a scheduling of real-time meetings and it can cross geographical boundaries, so it can be conducted online too.
- It is a flexible and inexpensive method (Bartholomew et al., 2011; Brady, 2015; Landeta, 2006).

Want to know more?

The articles and book below provide more in-depth information on the Delphi method, where the penultimate article focuses specifically on its use in a qualitative study and the last article is a good representation of how the method can be applied.

- Current validity of the Delphi method in social sciences (2006)
- Book: Planning Health Promotion Programs: An Intervention Mapping Approach (2011)
- Utilizing and Adapting the Delphi Method for Use in Qualitative Research (2015)
- Delphi Method (2016)

3.1.2 Conducting a needs assessment

After a planning and/or advisory group is compiled, the focus shifts on to reviewing topical literature and to deriving relevant determinants (de Lijster et al., 2019; Herrijgers et al., 2022). Determinants are changeable factors that can influence the risk behaviour and determine why someone wants to change their

behaviour or not (Fernandez, ten Hoor, et al., 2019). For this type of literature review, SICs can rely on reports on child online safety (see info box 2 above for examples), scientific articles, white papers, review articles, etc. The use of literature from empirical research is important to explore the topic more in-depth and identify the right audiences (Bartholomew et al., 1998). Review articles and meta-analyses are especially useful. Review articles, on the one hand, give a summary of the current thinking about a topic. A meta-analysis, on the other hand, is a scientific and objective way of analysing and combining different results to draw an overall conclusion (Ahn & Kang, 2018; Taylor and Francis, 2023). Examples of this kind of articles can be found in info box 5 below.

Info box 5: review articles and meta-analyses on e-safety topics

Review articles:

- **Keeping children safe online: A literature review (2020)**

  This review article gives an overview of how children and young people interact with technologies in the digital world and the risks involved (Mitra, 2020).

- **Youth Internet Safety Education: Aligning Programs With the Evidence Base (2021)**

  This review article provides an overview of youth internet safety programmes' messages on internet risks and the effectiveness of these initiatives (Finkelhor et al., 2021).

- **Cybersecurity awareness for children: A systematic literature review (2021)**

  This article discusses an overview of the current understanding of cybersecurity awareness for children with recommendations for future research (Quayyum et al., 2021).

- **Cyberbullying Among Adolescents and Children: A Comprehensive Review of the Global Situation, Risk Factors, and Preventive Measures (2021)**

  This review article focuses on the global situation, risk factors, and preventive initiatives used worldwide to combat cyberbullying in children and adolescents (Zhu et al., 2021).

- **Lines of Action for Sexting Prevention and Intervention: A Systematic Review (2022)**

  The focus in this review article is on sexting and the lines of action that help research in designing and evaluating effective programmes (Ojeda & Del Rey, 2022).

- **The current status of Cyberbullying research: a short review of the literature (2022)**

  This article focuses on cyberbullying where different definitions are discussed, as well as the prevalence and the target groups at risk (Vismara et al., 2022).

- **Artificial intelligence in cyber security: research advances, challenges, and opportunities (2022)**

  This article provides an overview of AI techniques that have been used in cybersecurity research in recent years (Zhang et al., 2022).

- **Understanding Social Media Literacy: A Systematic Review of the Concept and Its Competences (2022)**

  This review article takes a look at the different definitions of the concept of social media literacy and the included competences (Polanco-Levicán & Salvo-Garrido, 2022).

- **Consensual and Non-consensual Sexting Behaviors in Adolescence: A Systematic Review (2023)**

The focus of this article is on consensual and non-consensual sexting behaviours and the characteristics of individuals to participate or not (Barroso et al., 2023).

- **A Systematic Review on Hate Speech among Children and Adolescents: Definitions, Prevalence, and Overlap with Related Phenomena (2023)**

  This review article focuses on hate speech in children and adolescents looking at the different definitions, prevalence, as well as its overlap with related phenomena such as cyberbullying (Kansok-Dusche et al., 2023).

Meta-analyses:

- **Being a cybervictim and a cyberbully – The duality of cyberbullying: A meta-analysis (2020)**

  This meta-analysis focuses on the duality between being a victim of cyberbullying and a perpetrator. The results show that the correlation between these two is moderately high (Lozano-Blasco et al., 2020).

- **Are Youth Sexting Rates Still on the Rise? A Meta-analytic Update (2022)**

  This article takes a look at the question if sexting rates are still on the rise. From this meta-analysis can be concluded that these rates have plateaued (Mori et al., 2022).

- **Perpetrators' Identity in Online Crimes Against Children: A Meta-Analysis (2023)**

  The focus of this meta-analysis is to examine perpetrators' identity in internet crimes involving children. The results show that most perpetrators are known to the victim and a large proportion are underaged (Sutton & Finkelhor, 2023).

- **Effectiveness of Digital Health Interventions in Reducing Bullying and Cyberbullying: A Meta-Analysis (2023)**

  The aim of this meta-analysis is to take a look at the effectiveness of digital health interventions to reduce (cyber)bullying. The results show that these interventions are effective compared to face-to-face interventions (Chen et al., 2023).

Based on the literature review, SICs can also learn who is conducting what research in their country or internationally. With more resources, cooperation can also be established with these research centres or other organisations. In addition, SICs can conduct their own research among the target group through interviews, a survey or a focus group study to see which determinants are important (Fernandez, Ruiter, et al., 2019; Fernandez, ten Hoor, et al., 2019). When it comes to identifying determinants, it is important to make a distinction between personal determinants and environmental determinants (Brug et al., 2022; Herrijgers et al., 2022). From the literature review, it often becomes clear which determinants may play a more important role in the campaign or intervention (Fernandez, ten Hoor, et al., 2019). More information on each type of determinant is outlined in the table below (this list should not be considered exhaustive). The determinants are applied to cyberbullying bystander behaviour.

Personal determinants (Ajzen, 1991; Brug et al., 2022)	
Behavioural intention, motivation	The person's intentionality or willingness to adopt a certain behaviour (e.g., an adolescent's willingness to stand up for a cyberbully victim).
Attitude, outcome expectations	The person's favourable or unfavourable appraisal or evaluation of a certain behaviour (e.g., when adolescents have a negative appraisal against standing up for a cyberbully victim).

Subjective norm, perceived social influence	The person's perceived societal pressure or pressure from significant others (peers, parents, teachers, etc.) to engage in or refrain from engaging in a certain behaviour and what other people want them (not) to do (e.g., peers of the adolescent have a negative attitude toward bystander behaviour and hence do not stand up for victims. As a result, there is no social pressure to defend the victim).
Self-efficacy expectation or perceived behavioural control	The degree to which a person expects to be able to perform a behaviour (e.g., when adolescents are convinced that they are able to stand up against a cyberbully, they are more likely to do it).
Anticipated regret and moral obligation	The person's feeling of guilt when they do not perform a certain 'desirable' behaviour (e.g., when adolescents do not stand up for a cyberbully victim and the victim keeps getting cyberbullied, they can feel guilty for not standing up).
Risk estimation	When behaviour is influenced by people's estimation that the behaviour is associated with risk (e.g., when adolescents think everyone can be a victim of cyberbullying, except themselves).
Knowledge and awareness	The extent to which people have knowledge of the behaviour and are aware of the problem (e.g., the extent to which adolescents have knowledge about how to stand up against a cyberbully).
Personality traits	Five personal characteristics may guide behaviour, namely: extraversion, agreeableness, conscientiousness, openness, and emotional stability.

	Psychological factors are also part of this determinant. This includes factors such as risk taking or risk aversion, and so on (Gratian et al., 2018).
Environmental determinants (Brug et al., 2022)	
Physical environment	The means or opportunities available to enact a particular behaviour (e.g., internet access, digital skills, etc.).
Social environment	The social context in which the behaviour is performed (e.g., social network, parental support or parenting style, etc.).
Economic environment	The costs related to a particular behaviour (e.g., buying security software).
Political environment	The rules and laws that apply to a particular behaviour (e.g., perpetrators of cyberbullying face criminal prosecution).

Table 1: Examples of personal and environmental determinants (Brug et al., 2022)

3.1.3 Stating programme objectives and target group(s)

When SICs have enough information on the behaviour or problem they want to address, the objectives of the campaign or intervention can be determined. Here, it is essential that the target group is well-identified. In most cases, there may be different sub-target groups that require different approaches or more attention (e.g., vulnerable groups, younger children, adolescents, etc.). Additionally, it can be helpful to state these objectives within a certain time frame (Bartholomew et al., 1998; Brug et al., 2022; De Craemer et al., 2014; de Lijster et al., 2019; Herrijgers et al., 2022). Info box 6 below outlines an example of step one including all associated tasks.

Info box 6: example for step one

As outlined above, it is important in this step to review literature on the particular problem or topic around which a campaign or intervention will be conducted. In the study of DeSmet et al. (2016), they set up a game against cyberbullying. It was also developed based on the IMP approach. This example will be used in the following info boxes to explain the different steps.

In the first step within the identification of the problem or behaviour, they identified the problem based on a literature review:

1. **Problem:** the prevalence of cyberbullying and cybervictimisation leads to psychosocial problems for all young people involved.
2. **Target group:** pre-adolescents (12 to 14 years old).
3. **Programme objectives:**
   a) Reducing the prevalence of cyberbullying and cybervictimisation.
   b) Reducing depressive, suicidal behaviour, and anxiety among pre-adolescents.
   c) Reducing of externalising behaviours (as coping behaviours) like consuming alcohol and smoking.
   d) Encouraging greater involvement of schools.

3.2 Step two: preparing matrices of change objectives

The goal of this step is to identify behaviours that can help to achieve the new/desired behaviour (DeSmet et al., 2016). Based on the literature review and possible other methods used (e.g., surveys, focus groups, interviews, etc.), a matrix can be created of performance objectives and change objectives. First, the programme objectives (developed in step one) can be operationalised into performance objectives.

These are specific goals that determine who and what will change as a result of the campaign or intervention. Based on these, determinants can be derived. Change objectives consist of selecting the determinants that influence on the behaviour(s). There is a need for change in these determinants to allow the target group to perform the new behaviour (e.g., if an adolescent has less knowledge about how to stand up against a cyberbully, a change is needed in their knowledge about this behaviour). An example of each objective can be found in info box 7 below. A matrix, including performance and change objectives, can be made for each target group, and for behavioural (personal) and environmental outcomes (De Craemer et al., 2014; de Lijster et al., 2019; DeSmet et al., 2016; Herrijgers et al., 2022).

To see which determinants apply to the target population, the planning and/or advisory group can brainstorm. They can also draw on scientific literature or use qualitative research methods. For example, interviews or focus groups can be conducted with the target group to see which determinants apply. After this, a quantitative method, such as a survey, could be used to look at the prevalence and the strength of the determinants and how strongly they determine the behaviour. In addition, there are also some questions, as outlined below, that SICs can ask to see which determinants apply (Bartholomew et al., 1998; Fernandez, Ruiter, et al., 2019):

1. What factors have already been found in previous research that are related to the problem in the target population?
2. How robust is the scientific evidence that these factors can be linked to the behaviour in question?
3. How strongly does the evidence argue that the determinant is changeable and will lead to a change in the target population?
4. Which determinant could cause the most change?

Info box 7: example for step two

This box continues the example above of DeSmet et al. (2016). A few examples of performance and change objectives are outlined that are put into a matrix below. The focus of these objectives is on the behaviour of bystanders.

1. Performance objectives:

a) Bystanders evaluate whether the message is intended to be hurtful or will be perceived as hurtful.

b) Bystanders never assist or empower a bully.

2. Change objectives:

a) Knowledge, skill, self-efficacy, attitudes, outcome expectations, and subjective norm: e.g., showing confidence in the ability to recognise a bully's intentions (PO1).

b) Knowledge, skill, self-efficacy, attitudes, outcome expectations, and subjective norm: e.g., showing that joining or laughing is as bad as the initial cyberbullying (PO2) (DeSmet et al., 2016).

Example matrix:

In the matrix below, the rows of the table are the performance objectives which are elaborated for each (applicable) determinant. It can be created for the personal determinants, as well as for the environmental determinants, and separate ones are needed for each target group.

Performance objectives (bystanders)	**Knowledge**	**Skills and self-efficacy**	**Attitudes and outcomes expectations**	**Perceived social norms**
PO1. Assess whether the message is meant to hurt	**K1a**. Define which typical elements in online/GSM messages show	**SSE1**. Express confidence in recognising a bully's intention	**OE1.** Believe that recognising whether something is meant as funny	**PSN1.** Recognise that others also assess whether the message is

	a bully's wish to hurt		or nasty can help in better responding to cyberbullying	intended to hurt or not
PO2. NEVER laugh or say something to the bully to show you agree	**K2a.** Express that assisting or laughing is just as bad as the initial cyberbullying itself	**SSE2a**. Express confidence in understanding a victim's emotions	**OE2a.** Judge that cyberbullying is not justified, for no-one	**PSN2.** Recognise that others do not expect you to laugh or join in
PO3. ALWAYS comfort the victim	**K3a.** Recognise that by comforting the victim or providing advice, you are making the victim feel better	**SSE3.** Express confidence in being able to comfort or provide advice to the victim	**OE3.** Expect that by comforting the victim, they will feel better	**PSN3.** Recognise that your friends expect you to comfort or provide advice to the victim
PO4-PO5. Defend your friends	**K5a.** Recognise assertive reactions as a witness can stop cyberbullying	**SSE5a**. Express confidence in resisting peer pressure to not defend	**OE5a.** Judge that everyone deserves to be defended	**PSN5a.** Recognise that your parents approve of assertive reactions on behalf of friends who are cyberbullied
PO6. Talk to friends of the bully and victim to understand the situation	**K6a**. Describe strategies on how to collect more information to	**SSE6.** Express confidence in talking to friends of the bully and victim	**OE6.** Expect that talking to the bully's or victim's friends will clarify the situation and	**PSN6.** Recognise that others also collect information when the

	clarify the situation	to gather information	make it easier to decide what to do	situation is unclear
PO7. Do not blame the victim	**K7a**. State that cyberbullying is never right or justified, even if you don't like or know the victim well	**SSE7.** Express confidence to refrain from sensing the bullying is justified because of some of the victim's traits	**OE7.** Believe that by not blaming the victim, you are helping them to feel better	**PSN7a.** Recognise that your parents and friends expect you not to blame the victim
PO8-PO9. Tell an adult	**K8-9a.** Recognise that telling an adult is also a viable strategy for a bystander and not only for the victim	**SSE8-9.** Express confidence in talking to an adult when witnessing someone is being cyberbullied	**OE8-9a**. Expect that talking to adults will help end the cyberbullying	**PSN8-9a.** Recognise that your parents expect you to tell them when someone is being cyberbullied

Table 2: Matrix of change objectives (DeSmet et al., 2016)

3.3 Step three: selecting theory-informed intervention methods and strategies

After the objectives are clear, the theories and methods that are suitable for the intervention or campaign can be selected. The usefulness of a theory is that it provides a guideline for understanding behavioural change. In doing so, theories help choose appropriate methods and increase effectiveness because their usefulness has already been proven (Fernandez, Ruiter, et al., 2019).

The first step is to search the literature for theories that are topical to underpin the intervention or campaign (Herrijgers et al., 2022). A good approach is to start from the objectives and determinants (e.g., as keywords), because theories and models aim to describe determinants in a coherent manner. After selecting (an) appropriate theory or theories, fitting methods should be chosen (note: not all theories and methods fit together well), which then help in developing practical strategies. A method describes how to achieve change and directly influences the determinants. In this way, SICs can employ methods to achieve change in the determinants (e.g., the method of modelling: by imitating others, adolescents can learn about their own behaviour, and by that, a change takes place in their knowledge about the behaviour) (Brug et al., 2022). A list of possible methods can be found in section 3.3.2 below. Last, an actionable strategy is the practical translation of the method. The overall goal of this step is to link methods to objectives of the previous step and think about practical ways of delivering the message to the target group (e.g., by using a famous person, such as an influencer, to deliver the message) (Bartholomew et al., 1998; De Craemer et al., 2014).

Some useful theories and models are outlined below, along with an overview of possible methods. In the below sections (3.3.1.1 to 3.3.1.5), these are explained in more detail.

Theories and models	Methods
• Theory of Planned Behaviour, Ajzen (Ajzen, 1991) • Social Cognitive Theory, Bandura (Bandura, 1986) • Protection Motivation Theory, Rogers (Rogers, 1975)	• Modelling • Fear appeal • Social reinforcement • Persuasive communication • Social support • Framing etc.

• Health Belief Model, Hochbaum & Rosenstock (Hochbaum et al., 1952) • Prototype Willingness Model, Gibbons & Gerrard (Gibbons & Gerrard, 1995)	

Table 3: Some useful theories and methods (Bartholomew et al., 2011; Brug et al., 2022; Schiavo, 2014)

3.3.1 Selecting theories and models

The theories and models outlined in this section can be useful for SICs to draw on when developing interventions or campaigns in practice. Both theories and models are based on robust scientific research, but there are slight differences to them. A theory, on the one hand, is more general, universal, and abstract, which often makes it more difficult to apply. A model, on the other hand, is more concrete, sometimes visual, and most of the time quite specific, making it easier to apply. However, both terms are often used interchangeably and, overall, are crucial to increasing the effectiveness of an intervention or campaign (Brug et al., 2022; Rossmann, 2014).

3.3.1.1 Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is often used when individuals are aware of their behaviour and the negative consequences of it. The TPB argues that intention is the most important determinant of setting a behaviour. Intention, here, is determined by three concepts: attitude, subjective norm, and perceived behavioural control[1] (Ajzen, 1991; Bartholomew et al., 2011; Brug et al., 2022) (see figure 3 below).

[1] However, a distinction is sometimes further made between injunctive (what other people want us to do or not do) and descriptive (what other people do or what behaviour they state) norms. This extended model can be found here: https://www.semanticscholar.org/paper/Injunctive-and-Descriptive-Norms-and-Theory-of-to-Wong/16baa272f6b8bf006f5a7adb6edfc74a6dd1a367/figure/1

1. **Attitude:** a tendency to react positively or negatively to a thing, behaviour, person, organisation, or event. Salient views regarding the action impact one's attitude toward it (Ajzen, 1991; Bartholomew et al., 2011; Brug et al., 2022). For example, if adolescents have a favourable attitude towards cyberbullying, they could have a greater intention to cyberbully (Heirman & Walrave, 2012).
2. **Subjective norm:** whether certain, significant persons or groups approve or disapprove of the focal person engaging in the behaviour and how important those individuals' opinions are to the person (Ajzen, 1991; Bartholomew et al., 2011; Brug et al., 2022).
3. **Perceived behavioural control:** the way in which a person is convinced to be capable of executing a certain action or behaviour (Ajzen, 1991; Bartholomew et al., 2011; Brug et al., 2022).

This model has already been widely applied to topics that are closely related to e-safety. For instance, it can be a suitable theory to look at how individuals make e-safety decisions. Determinants include attitude, subjective norm, perceived behavioural control, and intention, and a suitable method, for instance, can be social support (see section 3.3.2). Some examples of studies that investigated specific online behaviours, applying the TPB, can be found in info box 8 below.

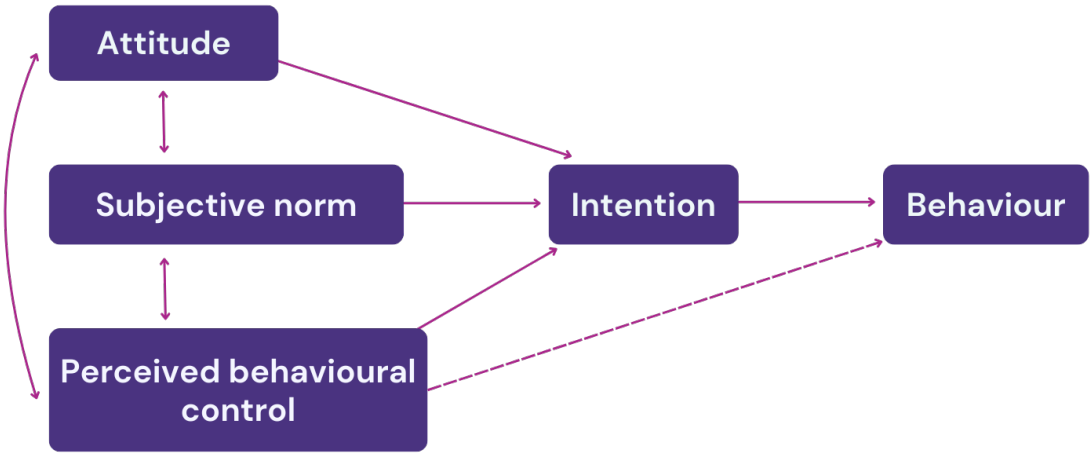

Figure 3: Theory of Planned Behaviour (Ajzen, 1991)

Info box 8: examples of the Theory of Planned Behaviour

- **Predicting adolescent perpetration in cyberbullying: an application of the Theory of Planned Behaviour (2012)**

  This study uses the TPB to see if it can explain why adolescents could be perpetrators of cyberbullying (Heirman & Walrave, 2012).

- **Under pressure to sext? Applying the theory of planned behaviour to adolescent sexting (2014)**

  This study applies the TPB to sexting behaviour looking at the predictive value of attitudes, subjective norm, and perceived behavioural control (Walrave et al., 2014).

- **Determinant factors of cyberbullying: an application of Theory of Planned Behaviour (2017)**

  This study looks at the determinants that could have an influence on the intention of adolescents to cyberbully others. Besides the determinants of the TPB, this research also focused on moral obligation, perceived threat of legal punishment, and the overall gain (Jafarkarimi et al., 2017).

3.3.1.2 Social Cognitive Theory

The Social Cognitive Theory (SCT) is an interpersonal theory that addresses the factors that influence conduct as well as the process of behaviour change (Bartholomew et al., 2011). According to the framework, this theory suggests, there are three main aspects which interact as a mutual three-way determinism, namely personal factors, behavioural factors, and environmental factors (see figure 4 below). A change in one of these factors can cause a change in the remaining ones. Individuals' actions and environments can be affected by what people think, thoughts and environments can be altered by their actions, and thoughts and actions can be influenced by the environment (Brug et al., 2022; Schiavo, 2014; Schunk & DiBenedetto, 2020).

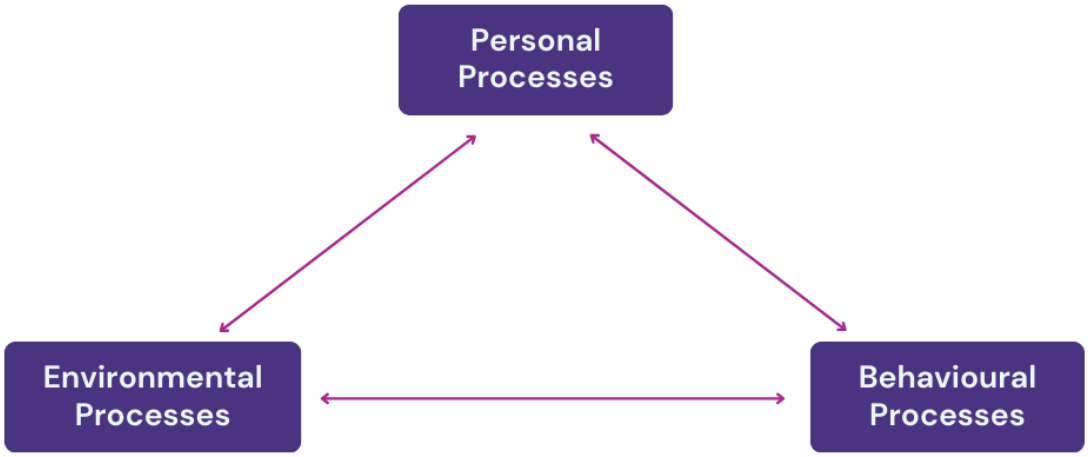

Figure 4: Social Cognitive Theory (Schunk & DiBenedetto, 2020)

In addition, the SCT suggests that behaviour is determined by one's expectations of a behaviour. Different expectations play a role here:

- **Situation-outcome expectancies:** these are the expectations a person has about the consequences of events in the social and physical environment without changing their behaviour themselves.
- **Action-outcome expectancies:** these are the expectations a person has about the consequences when they do change their own behaviour.
- **Self-efficacy:** the expectations a person has about their own ability to perform a certain behaviour.

This model has also been widely applied to topics related to e-safety and can be useful for SICs to base their work on, as they can look at how individuals can learn online behaviour, and whether they can adopt protective measures from others. Determinants can include outcome expectations, self-efficacy, and perceived behaviour. Methods that work well with the SCT are active learning, reinforcement, modelling, and persuasive communication (Bartholomew et al., 2011) (see section 3.3.2 below).

Info box 9: examples of the Social Cognitive Theory

- **Cyber-Bullying Among University Students: An Empirical Investigation from the Social Cognitive Perspective (2013)**

  This study focuses on university students and the SCT, where personal and environmental factors are tested to see how likely these students are to perform cyberbullying behaviour (Xiao & Wong, 2013).

- **Adolescents' Safe Online Behaviour: A Multi-Factor Analysis Based on Social Cognitive Theory (2015)**

  In this study, the SCT is used to underpin a survey to look at the correlation between the online use of adolescents and the behaviour of parents, as well as the adolescent's self-efficacy and self-regulation (Mubarak & Mani, 2015).

- **A meta-analysis of factors predicting cyberbullying perpetration and victimization: From the social cognitive and media effects approach (2017)**

  This study used the SCT to take a look at the personal and environmental factors that could explain the predictors of cyberbullying (Chen et al., 2017).

- **Bystander reactions to cyberbullying and cyberaggression: individual, contextual, and social factors (2020)**

  This research looks at the individual (moral disengagement), contextual (bystander effect), and social factors (class or school environment) that are associated with the reactions of adolescents' bystanders' behaviour to cyberaggression (Machackova, 2020).

3.3.1.3 Protection Motivation Theory

The Protection Motivation Theory (PMT) has its starting point at the level of fear at which people are most likely to proceed to preventive action (see figure 5 below).

In doing so, they make two estimations: an appraisal of the threat and an appraisal of their own ability to deal with the threat (coping appraisal). The threat appraisal includes determining the degree of risk of negative outcomes posed by a threatening event or behaviour and it consists of three aspects (Brug et al., 2022):

1. **Intrinsic and extrinsic rewards:** these are rewards that individuals expect if they do not exhibit protective behaviour;
2. **Perceived severity:** it indicates the severity of the consequences of expected threats;
3. **Perceived vulnerability:** a probability evaluation of threat events.

The latter two are related to the concept of 'fear'. When individuals exhibit higher levels of fear, they are more likely to engage in adaptive behaviour. The coping appraisal includes assessing one's ability to deal with and prevent a threatening event and it consists of three aspects (Brug et al., 2022):

1. **Response efficacy:** relates to the individual's beliefs about the perceived advantages of coping behaviour;
2. **Self-efficacy:** relates to the individual's perceived capacity for adaptive behaviour;
3. **Response cost:** relates to the potentiality of costs, such as money, effort, time, etc.

Together, these evaluations provide a protective motivation that is measured as a desire to follow the preventive advice. This theory bears a resemblance to the Health Belief Model (Brug et al., 2022) (see section 3.3.1.4 below). One difference is that the PMT adds two additional factors:

1. **Maladaptive behaviour:** this behaviour is a reaction that is not going to address the threat directly. It is an assessment of the danger, but therefore does not immediately change behaviour;
2. **Adaptive behaviour:** this behaviour is a reaction that is going to try to avoid the threat (Bartholomew et al., 2011; Dodge et al., 2023; Wu, 2020).

This theory can be used to see which reactions people have to online threats and what measures they take to protect themselves. A determinant used in this model is self-efficacy and appropriate methods include fear appeal and tailoring

(Bartholomew et al., 2011) (see also section 3.3.2 below). This theory, too, has already been used several times in relation to e-safety topics (see examples in info box 10 below).

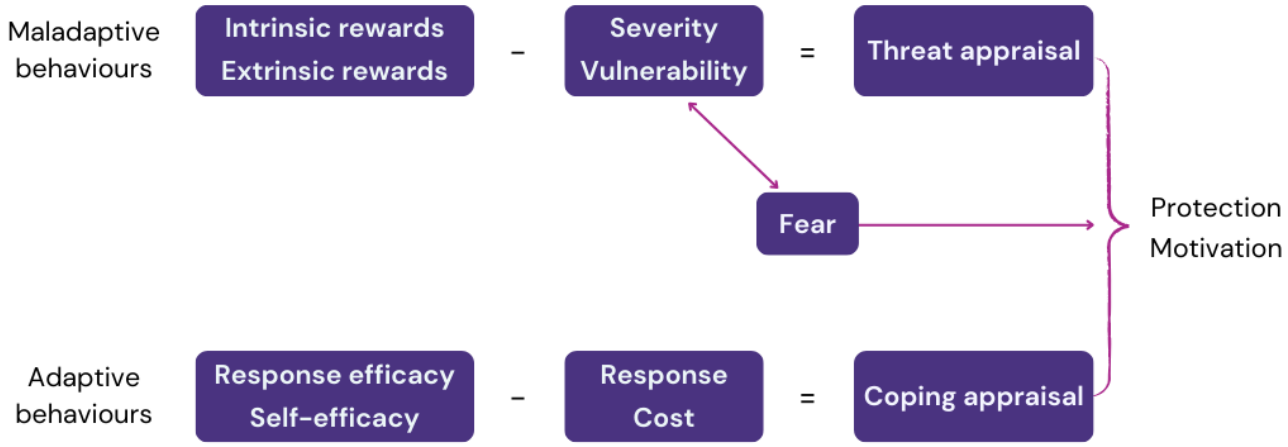

Figure 5: Protection Motivation Theory (Mehtari Taheri et al., 2019)

Info box 10: examples of the Protection Motivation Theory

- **Risky electronic communication behaviors and cyberbullying victimization: An application of Protection Motivation Theory (2016)**

  This research examines the PMT as an explanation for safe behavioural intentions and practices in electronic communication, as well as cyberbullying victimisation (Doane et al., 2016).

- **Using protection motivation theory in the design of nudges to improve online security behavior (2019)**

  This research uses an experiment to look at the effect of notifications on security behaviour. A coping message instructed participants on how to reduce their risk exposure, while a threat appeal underlined the potential

negative consequences of not doing so, both inspired by the PMT (van Bavel et al., 2019).

- **Teachers' role in youth protection against cyberbullying: the utility of integrated protection motivation and attachment theories (2020)**

  This study uses the PMT to look at the relationship between a teacher and pupils to protect them against cyberbullying (Benrazavi, 2021).

- **Empirical study of knowledge withholding in cyberspace: Integrating protection motivation theory and theory of reasoned behavior (2020)**

  This study looks at the PMT to analyse knowledge withholding in cyberspace, which is a common counterproductive knowledge behaviour (Wu, 2020).

- **What we think we know about cybersecurity: an investigation of the relationship between perceived knowledge, internet trust, and protection motivation in a cybercrime context (2022)**

  This study uses the PMT to look at how perceived knowledge and internet trust influence threat and coping appraisal when it comes to online safety behaviour (De Kimpe et al., 2022).

- **What motivates users to adopt cybersecurity practices? A survey experiment assessing protection motivation theory (2023)**

  This study examines the relationship between perceived severity, perceived vulnerability, and the response cost to the intention to use information technology cybersecurity recommendations (Dodge et al., 2023).

3.3.1.4 Health Belief Model

The Health Belief Model (HBM) is a good model to better understand the perceptions, attitudes, and barriers that could influence behaviour. It is a model primarily used for health issues but can certainly be translated to e-safety as well. The model suggests that behaviour is regulated by the perceived threat and the evaluation of the recommended behaviour (see figure 6 below) (Bartholomew et al., 2011; Brug et al., 2022; Schiavo, 2014).

The perceived threat consists of two factors:

1. **Perceived susceptibility:** the person's estimation of risk of contracting a certain problem.
2. **Perceived severity:** the subjective opinion of whether a given issue has the potential to be serious or dangerous and is hence important enough to warrant attention.

The recommended behaviour includes:

1. **Perceived benefits:** the individual's awareness of the benefits of the recommended measures has the potential to reduce risk.
2. **Perceived barriers:** the individual's perceptions of costs and barriers to adoption of proposed actions.

Often people need an additional nudge to effectively engage in the behaviour, which refers to the cues to action (e.g., an awareness campaign or a previous experience). A method fitting well with the HBM is consciousness-raising (Bartholomew et al., 2011; Brug et al., 2022; Schiavo, 2014) (see also section 3.3.2 below). It is less used in topics around e-safety, but it can still be a useful model to see how young people assess risks online and what initiatives they take to protect themselves.

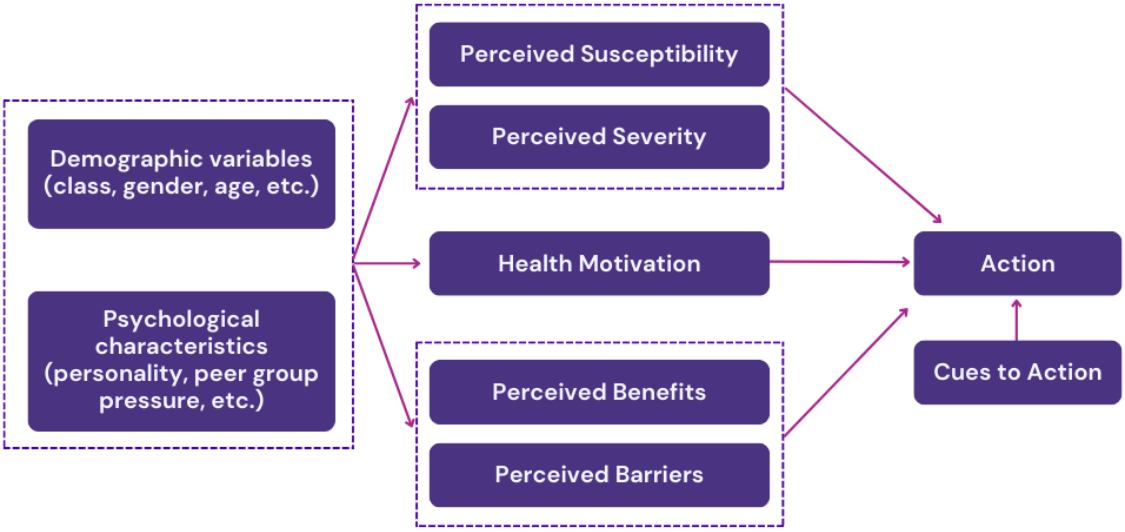

Figure 6: Health Belief Model (Etheridge et al., 2023)

Info box 11: examples of the Health Belief Model

- **Cyber-victimization preventive behavior: A health belief model approach (2017)**

  This paper analyses the determinants of cybersafety behaviours and specifically the factors associated with using anti-virus software (Dodel & Mesch, 2017).

- **School Administrator Perceptions of Cyberbullying Facilitators and Barriers to Preventive Action: A Qualitative Study (2017)**

  This research looks at the perceived barriers of the HBM to study the school administrators' perceptions of cyberbullying facilitators and barriers to primary and secondary preventive efforts (Young et al., 2017).

3.3.1.5 Prototype Willingness Model

The last proposed model is the Prototype Willingness Model. This is a theory that is often used to explain adolescents' risk behaviour (Gerrard et al., 2008; Gibbons

& Gerrard, 1995). It assumes that there are two paths of decision-making which adolescents typically follow involving risk behaviour: a reasoned path and a social reaction path (see figure 7 below).

The reasoned path (based on the Theory of Reasoned Action, which is the predecessor of the TPB (Fishbein & Ajzen,1975)), on the one hand, leads to certain decisions based on rationality, weighing the benefits, and risks of the behaviour. Here, three factors are important (Elliott et al., 2017; Gerrard et al., 2008; Gibbons & Gerrard, 1995; Paluckaitė & Žardeckaitė-Matulaitienė, 2021; Walrave et al., 2015):

1. **Attitude:** the mindset adolescents have towards the consequences of the behaviour.
2. **Subjective norm:** the perception the adolescent has of significant others' approval of the behaviour (e.g., peer influence can be a determining factor).
3. **Behavioural intention:** the deliberate action plan derived from the attitudes and subjective norms.

The social reaction path, on the other hand, is designed to explain adolescents' unintentional behaviour, which is more intuitive and unforced. This path contains two factors (Elliott et al., 2017; Gerrard et al., 2008; Gibbons & Gerrard, 1995; Paluckaitė & Žardeckaitė-Matulaitienė, 2021; Walrave et al., 2015):

1. **Risk prototype:** the mental images adolescents have of people who exhibit risk behaviour. It is important to make a distinction between prototype similarity and prototype favourability:

   a. **Prototype similarity:** the extent to which the adolescents think he/she is similar to the prototype.

   b. **Prototype favourability:** the positive or negative evaluation of the adolescents of the prototype (in other words, which characteristics are linked to the prototype of the person performing a particular behaviour).

2. **Behavioural willingness:** the extent to which adolescents are open to exhibiting risk behaviour (Elliott et al., 2017; Gerrard et al., 2008; Gibbons & Gerrard, 1995; Paluckaitė & Žardeckaitė-Matulaitienė, 2021; Walrave et al., 2015).

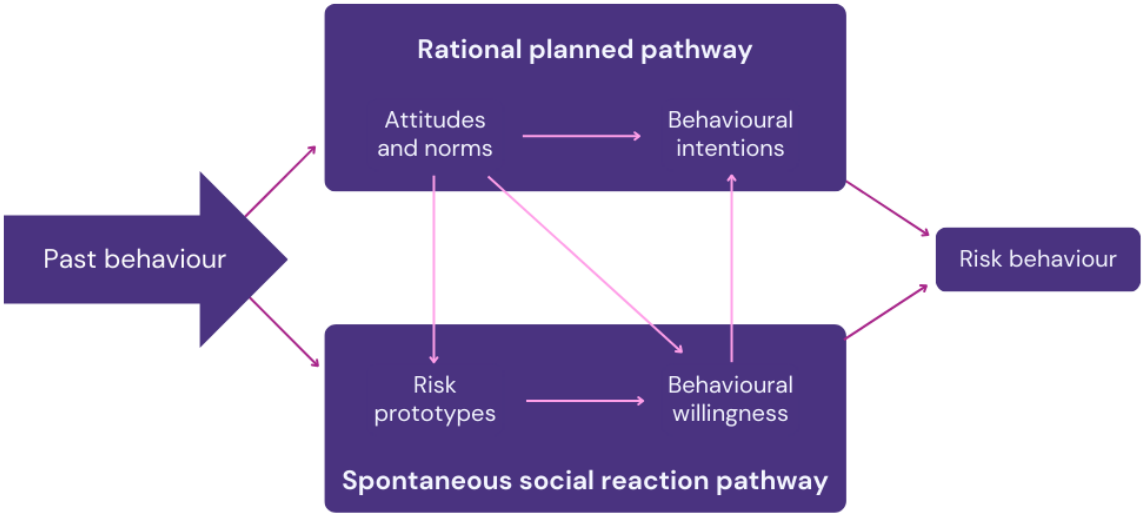

Figure 7: Prototype Willingness Model (Gerrard et al., 2008)

Info box 12: examples of the Prototype Willingness Model

- **To share or not to share? Adolescents' self-disclosure about peer relationships on Facebook: An application of the Prototype Willingness Model (2015)**

  This research uses the PWM to study the sharing of personal information about peer relationships to see if it follows a rational planned pathway or a social reaction pathway (Van Gool et al., 2015).

- **Whether or not to engage in sexting: Explaining adolescent sexting behaviour by applying the prototype willingness model (2015)**

  This study looks at how, amongst others, peers' perceptions of sexting influence adolescents' willingness to engage in sexting (Walrave et al., 2015).

- **Adolescents' sexy self-presentation on Instagram: An investigation of their posting behavior using a Prototype Willingness Model perspective (2020)**

  This research uses the PWM to assess how other teenagers' perceptions impact their posting behaviour. The PWM often is used as one aspect, as other constructs (e.g., peer influence) are also researched (Van Ouytsel et al., 2020).

- **Adolescents' intention and willingness to engage in risky photo disclosure on social networking sites: Testing the prototype willingness model (2021)**

  The PWM is used in this study to see if it can explain teenagers' dangerous photo disclosure on social network sites (Paluckaitė & Žardeckaitė-Matulaitienė, 2021).

3.3.2 Brainstorming about methods

To find out which methods are suited best, the planning group can brainstorm about a potential list of methods, which can be used to bring a change in the behaviour of the target group (Bartholomew et al., 1998). There are several useful methods that SICs can implement to try to bring a change in the behaviour of the target group and these have been, in part, already proposed in the outline of useful theories and models above. The following table briefly explains each of these (the list should not be considered exhaustive).

Method	Explanation
Active learning	Active learning means encouraging goal-oriented, activity-based experiential learning (Bartholomew et al., 2011).
Arguments	Arguments as a method means employing one or more meaningful arguments as premises to support a conclusion. In the context of central argument processing, the premises should present novel information to the recipient of the message (Bartholomew et al., 2011).
Chunking	Chunking refers to the utilisation of arrangements of stimuli that may consist of individual components but are perceived as complete entities. Labels or acronyms can be applied to enhance memory retention (Bartholomew et al., 2011).
Consciousness raising	Consciousness raising means offering insights, feedback, or discussions concerning the origins, outcomes, and alternative approaches related to an issue or problematic behaviour (Bartholomew et al., 2011).
Entertainment-education (edutainment)	Edutainment offers an educational form of entertainment intended to inform about (health) behaviour while also providing entertainment (Bartholomew et al., 2011).

Fear appeal	Fear appeal refers to the self-protective motivation and action when arousing negative emotional reactions. A high self-efficacy expectation is important (Bartholomew et al., 2011). A negative side of this method is that it is rarely effective. Some researchers state that moderate fear appeals are effective to get people into a negative drive state where they change their behaviour. People need to have a strong efficacy perception and need to be convinced that they are able to perform the new behaviour (Witte, 1996).
Feedback	Feedback as a method relates to offering individual information about the progress in achieving learning or performance objectives, as well as the impact of the performance. It should be personalised, provided in a timely manner, and be specific to the behaviour (Bartholomew et al., 2011).
Goal setting	Goal setting means encouraging the formulation of a plan detailing the actions an individual will take, encompassing a clear definition of purpose-driven behaviours leading to the desired outcome (Bartholomew et al., 2011).
Modelling	Modelling is a method that is often used with the Social Cognitive Theory, explained above. It provides an appropriate reinforcement model for the desired action. Observing and imitating are important as it takes place from a person's perspective, where they can learn from the behaviour of others (e.g., how to perform the behaviour and what the consequences are). It can bring a change in behaviour, knowledge, attitudes, and values (Bartholomew et al., 2011; Brug et al., 2022).

Persuasive communication	Persuasive communication refers to the use of arguments or other means to guide people towards the adoption of an idea, attitude, or action. It is important that the messages used, are relevant and not too discrepant from the person's beliefs (Bartholomew et al., 2011).
Providing cues	When providing cues, the same cues are present at the time of learning and at the time of retrieval. Cues work best when people are allowed to choose and make their own signals (Bartholomew et al., 2011).
Reinforcement	Reinforcement means that an individual can link the behaviour to any consequence that increases the rate, frequency, or likelihood of the behaviour. An example can be that a teacher compliments a student on their bystander behaviour to support a victim (Bartholomew et al., 2011).
Scenario-based risk	Scenario-based risk relates to providing information that can help build a picture of how a future loss or accident might occur. When people can create their own scenario, it is the most effective (Bartholomew et al., 2011).
Social support	Social support refers to a direct positive influence from others (Brug et al., 2022).
Tailoring	Tailoring means matching interventions or components to previously measured participant characteristics. In this way, tailor-made education can be provided, where information is matched to the needs and wants of individuals in the target group. Conducting a survey among the target audience can be useful to find out what their needs are (Bartholomew et al., 2011; Brug et al., 2022).

Using imagery	Using imagery refers to messages, pictures, etc. that have a similar appearance to something else (Bartholomew et al., 2011).

Table 4: Examples of methods

3.3.3 Selecting methods

To see what methods might be appropriate, SICs can draw on literature and previous studies. Here, an important task of the planning and advisory group is to critically review the evidence supporting the methods (Bartholomew et al., 1998).

3.3.4 Translating methods into practical strategies

A final task within this step is to translate the methods into concrete, practical strategies (Bartholomew et al., 1998; De Craemer et al., 2014). For example, a role model can be used to convince adolescents of the message, thus changing their attitude since they can (and likely want to) imitate the behaviour of the role model. Here, it is important to consider to what extent the target audience wants to participate in the strategy and would accept it (Bartholomew et al., 1998).

Info box 13: example for step three

As explained in info box 6, DeSmet et al. (2016) set up a game against cyberbullying using the IMP. In step three of the IMP, they chose methods based on theory, and used the Intervention Mapping handbook of Bartholomew et al. (2011), meta-analyses on serious health games, and in consultation with experts. For example, the developers used feedback in the game in the form of textual and auditive feedback. In addition, they tailored the game for boys and girls.

3.4 Step four: developing the intervention or campaign programme

In step four, SICs can use qualitative methods such as focus groups or interviews to check if the proposed strategies and components are the most important ones and are acceptable for the implementers and the participants. This step is typically referred to as 'pilot-testing' and includes going back and forth between step four and five as needed (Bartholomew et al., 1998).

3.4.1 Operationalising the strategies

In this task, the aim is to clearly translate strategies into an intervention or campaign. Here, it is important to describe the channels through which the intervention or campaign will take place (interpersonal, social media, mediated, etc.), as well as how it will be done. This is the outcome of the methods being translated into a practical strategy (e.g., using a newsletter, teaching a lesson in a school, building an application, etc.) (Bartholomew et al., 1998; De Craemer et al., 2014; Herrijgers et al., 2022).

3.4.2 Designing the intervention/campaign materials

The next task is creating planning documents such as scripts or storyboards to give the people designing the materials a clear plan and a full picture of how the intervention or campaign should be developed. Even if materials are created within SICs, they can be helpful roadmaps and valuable documentation. These documents contain the messages, themes, and motives of each component of the intervention or campaign. Moreover, it also contains a clear breakdown of who will develop which materials (e.g., in the form of a task list with designated people leading on respective tasks). This is especially useful if the development of the materials is outsourced to an external organisation but can also be helpful within the SIC team itself (Bartholomew et al., 1998; de Lijster et al., 2019; Herrijgers et al., 2022; Kim, 2021).

3.4.3 Developing or choosing materials and pre-test

This task involves working with the planning documents that have been prepared and allows drafts or pilot versions of the materials to be made. The materials for the intervention can be developed internally or in cooperation with external partners. After the intervention or campaign has been created, it should be tested. Pre-testing of the materials ideally is only done once they are as close as possible to the final product. There are a few factors that are often tested during this phase: the target group's understanding, the attractiveness of the materials and messages, and take-up, the message's plausibility, and preliminary signs of effectiveness. Moreover, it is important that the materials are tested with the target group to get an accurate assessment of the developed intervention or campaign. It can be done through focus groups, interviews, experimental research, surveys, a trial implementation, or by using other approaches (Bartholomew et al., 1998; Fernandez, Ruiter, et al., 2019).

Info box 14: example for step four

In step four, DeSmet et al. (2016) combined all the information from the previous steps to create the materials of the intervention. In a first step, they conducted a survey with adolescents to see which game story they would prefer. After this, they did a pilot test with adolescents to test the concept of the game story and characters using focus groups. When they developed a full prototype, they tested this with adolescents using a retrospective think-aloud method and a semi-structured survey. Subsequently, they designed a second prototype.

3.5 Step five: planning for adoption, implementation, and sustainability

After the intervention has been tested and possibly modified, an adoption and implementation plan can be developed (De Craemer et al., 2014). Here, the planning group can think about the adoption (i.e., the willingness of the target

audience to accept the campaign or intervention), implementation (i.e., the deliberate actions needed to implement the campaign or intervention within a specific setting), and maintenance (i.e., the sustained utilisation of an intervention or campaign). Moreover, it is also possible to divide who will take on which task in the process (Fernandez, Ruiter, et al., 2019). Based on the previous four steps, it is determined how the intervention or campaign will be implemented. Here, SICs can ask themselves if, for example, external partners are needed for the implementation (e.g., influences to act as multipliers to disseminate the campaign or intervention). This step should result in a clear outline of the central components of the campaign or intervention (De Craemer et al., 2014).

Info box 15: example for step five

In step five, DeSmet et al. (2016) appealed to the stakeholder group (namely school representatives and counsellors, governmental department of education, parent organisations, youth advisory centres, helplines, TV channels, etc.) to ensure that the game would be feasible to use. Their input also affected the decisions made on the game distribution and promotion.

3.6 Step six: planning for effectiveness and evaluation

The last step of the IMP consists of deciding on how to evaluate the effectiveness of the intervention or campaign. Effectiveness refers to the degree to which the intervention or campaign has accomplished or is anticipated to accomplish its goals and its results, while also considering any variations in results among different groups (OECD/DAC Network on Development Evaluation, 2019).

There are two kinds of evaluations SICs can use, namely effect and process evaluation. Effect evaluation looks at whether the intervention has had the desired results, while process evaluation looks at whether the intervention was implemented as planned. Process evaluation is often conducted to see why an intervention was or was not effective. This is important to learn for the future or to

adjust other ongoing interventions in the meantime. Effect evaluation is often done by using quantitative methods (e.g., surveys, experiments). Process evaluation usually uses qualitative research (e.g., interviews, focus groups), but sometimes quantitative research can also be useful to quantify the reach of the campaign (Brug et al., 2022).

The matrix of change objectives can be the blueprint to measure the determinants. Premises that are related to theories, methods, concrete strategies, and the implementation plan can be measured through process evaluation. Both quantitative and qualitative methods can be used to evaluate dissemination, adoption, implementation, exposure of the participants, and both the reactions of the implementers and the participants of the intervention or campaign (Bartholomew et al., 1998).

Info box 16: example for step six

For the evaluation, DeSmet et al. (2016) planned to do a quasi-experimental study to evaluate the efficacy of the intervention in addressing the change objectives. Therefore, they randomly assigned schools to either a control (not exposed to an intervention) or intervention group. Questionnaires were used to evaluate the effects on change. Lastly, they conducted a process evaluation among the game users.

An interesting and useful framework to use when evaluating interventions or campaigns is the RE-AIM framework. An implication of this framework is that it focuses on the evaluation of developed interventions or campaigns, so it cannot be used for pre-testing or pilot-testing the prototypes of an intervention or campaign. The RE-AIM framework consists of different dimensions on different levels (Brug et al., 2022).

RE-AIM dimension	Explanation
Reach (individual level)	It refers to the proportion of potentially eligible individuals who received or are impacted by the campaign or intervention. It also refers to the characteristics of the participants. A question that can be asked: 1) What proportion of potentially entitled participants were: a. Excluded; b. Took part, and; c. How representative were they?
Efficacy or effectiveness (individual level)	The efficacy of a campaign or an intervention looks at the behavioural outcomes that should be conducted for the participants. A question that can be asked: 1) What impact did the campaign or intervention have: a. On all of the participants who started; b. On intermediate, process, and primary outcomes; c. On positive as well as negative (unintended) outcomes, including the quality of life?
Adoption (setting level)	Adoption refers to the proportion and representativeness of settings that acquire a certain campaign or intervention. A question that can be asked:

	1) What proportion of settings and intervention/campaign agents within these settings (e.g., schools/teachers, trainers, etc.): a. Were excluded; b. Participated; c. And how representative were these?
Implementation (setting level)	Implementation refers to the degree to which an intervention or campaign is conveyed as intended. A question that can be asked: 1) To what extent were the different intervention/campaign components conveyed as intended, especially when conducted by various staff members in applied settings?
Maintenance (individual level)	Maintenance on the individual level refers to the extent to which participants relapse in their old behaviour. It looks at the long-term effects of the intervention or campaign. Three questions that can be asked: 1) What were the effects in the long-term (minimum six to twelve months after the intervention or campaign)? 2) What was the drop-out rate and were these representative (i.e., are they similar to the participants that originally started)? 3) How did the attrition have an impact on the conclusions about effectiveness?
Maintenance (setting level)	Maintenance on the setting level looks at what extent the intervention or campaign became a routine or an everyday culture in the organisation or target group.

	Two questions that can be asked: 1) To what extent were the various intervention/campaign components sustained or institutionalised? 2) How was the authentic programme or intervention modified?

Table 5: RE-AIM framework (Brug et al., 2022; Glasgow et al., 1999)

The results of an intervention or campaign can be used for different purposes. When the intervention turns out to be ineffective, SICs can take a look at the causes. In this way, they can search for solutions or they can learn for the next intervention or campaign. When the impact turns out to be good, it can be used to win over other partners (e.g., schools). SICs can also communicate their results to the media to generate attention for the project or future projects (among other benefits). In this way, it can also be presented to other centres as a good practice to rely on when creating, pilot-testing, and evaluating evidence-based online safety interventions and awareness-raising campaigns. In collaboration with researchers, the results of the evaluation can be published and/or presented to further disseminate the intervention.

4. Conclusion

With this good practice guide we aim to inspire awareness centres in building their online safety interventions and campaigns in an evidence-based manner, as well as in evaluating the results. The Intervention Mapping Protocol provides a good basis, as it allows users to approach it in a toolkit kind of manner, selecting and using only parts or the whole methodology, and thus, creating meaningful outputs regardless of resources or funds. By following the model, an intervention or campaign can be developed systematically with a focus on both development and evaluation. In addition, it can increase both the effectiveness and efficiency of an intervention or campaign as it is an iterative process of reviewing evidence (Bartholomew et al., 1998; Bartholomew et al., 2011; Brug et al., 2022; Fernandez, Ruiter, et al., 2019; Herrijgers et al., 2022; Pirta-Dreimane et al., 2022). Furthermore, the IMP can be applied with varying amounts of resources, depending on the capacity of an organisation. Throughout the steps of the IMP, a SIC can make different choices such as outsourcing research to external partners, relying on scientific research or experts, and so on, and both quantitative and qualitative methods can be used in the different steps.

The model starts by setting up an advisory and/or planning group after which, through a literature review, a clear understanding and overview of the target group(s) and objective(s) can be obtained (section 3.1). In the second step, these insights can be converted into performance and change objectives where the determinants are defined (section 3.2). Determinants are important for choosing appropriate theories and methods in the next step (section 3.3). After this has been determined, the materials are developed for the campaign or intervention (section 3.4). These can be developed within the organisation or outsourced to an external organisation. Following the development, materials should be tested. Here, it is important that pre-testing involves the actual target group(s) and takes place when the campaign materials are nearly finalised. Finally, the campaign or intervention can be officially launched with careful follow-up (section 3.5). The final step consists of evaluating the campaign or intervention through process or

effect evaluation (Bartholomew et al., 2011) (section 3.6). This is a brief summary of the IMP. Through the different info boxes (with cases, articles, reports, etc.) included in this guide, SICs can acquire a deeper understanding of the different steps.

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Annex I: Lexicon

Term	Definition
Active learning (method)	Active learning means encouraging goal-oriented, activity-based experiential learning (Bartholomew et al., 2011).
Adoption	The willingness of the target audience to accept the campaign or intervention (Fernandez, Ruiter, et al., 2019).
Adoption (RE-AIM)	Refers to the proportion and representativeness of settings that acquire a certain campaign or intervention (Brug et al., 2022).
Advisory group	Consists of relevant partners in the field who are consulted when expertise is needed on a particular topic (de Lijster et al., 2019; Herrijgers et al., 2022).
Anticipated regret and moral obligation (determinant)	The person's feeling of guilt when they do not perform a certain 'desirable' behaviour (Brug et al., 2022).
Attitude, outcome expectations (determinant)	The person's favourable or unfavourable appraisal or evaluation of a certain behaviour (Ajzen, 1991; Brug et al., 2022).
Arguments (method)	Arguments as a method means employing one or more meaningful arguments as premises to support a conclusion (Bartholomew et al., 2011).
Behavioural intention, motivation (determinant)	The person's intentionality or willingness to adopt a certain behaviour (Brug et al., 2022).
Change objectives (method)	Consists of selecting determinants that have an influence on behaviour (De Craemer et al., 2014; de Lijster et al., 2019; DeSmet et al., 2016; Herrijgers et al., 2022).

Chunking (method)	Chunking refers to the utilisation of arrangements of stimuli that may consist of individual components but are perceived as complete entities. Labels or acronyms can be applied to enhance memory retention (Bartholomew et al., 2011).
Consciousness raising (method)	Consciousness raising means offering insights, feedback, or discussions concerning the origins, outcomes, and alternative approaches related to an issue or problematic behaviour (Bartholomew et al., 2011).
Co-creation research	It refers to the whole process where different stakeholders (both from inside and outside the organisation) are involved in the different phases of the intervention (Lee et al., 2018).
Delphi method	A method that attempts to reach consensus on a problem by surveying around ten to fifteen experts (Bartholomew et al., 2011).
Determinants	Changeable factors that can influence the risk behaviour and determine why someone wants to change their behaviour or not (Fernandez, ten Hoor, et al., 2019).
Effectiveness	The degree to which the intervention or campaign has accomplished or is anticipated to accomplish its goals and it results, while also considering any variations in results among different groups (OECD/DAC Network on Development Evaluation, 2019).
Effect evaluation	Evaluation that looks at if the intervention had the desired results (Brug et al., 2022).
Efficacy (RE-AIM)	Refers to the behavioural outcomes that should be conducted for the participants (Brug et al., 2022).
Entertainment-education (edutainment) (method)	Edutainment offers an educational form of entertainment intended to inform about (health) behaviour while also providing entertainment (Bartholomew et al., 2011).
Evidence-based	'Evidence-based' means that practices, interventions, and campaigns are conducted and drafted based on information derived from objective evidence (Cambridge Dictionary, 2023; Jensen & Gerber, 2020).

Experiment	An experiment is an organised and planned investigation in which hypotheses are tested, questions are answered and new facts may be discovered (Casler, 2015).
Fear appeal (method)	Fear appeal refers to the self-protective motivation and action when arousing negative emotional reactions (Bartholomew et al., 2011).
Feedback (method)	Feedback as a method relates to providing individual information about the progress in achieving learning or performance objectives, as well as the impact of the performance. It should be personalised, provided in a timely manner, and be specific to the behaviour (Bartholomew et al., 2011).
Field research	Data collection is carried out in the field among target groups (e.g., adolescents, teachers, etc.) within a specific time period (Queirós et al., 2017).
Focus groups	Focus groups are used when studying a complex behaviour, where the researcher can engage in conversation with respondents in a nonthreatening environment (Krueger & Casey, 2015; Queirós et al., 2017).
Goal setting (method)	Goal setting means encouraging the formulation of a plan detailing the actions an individual will take, encompassing a clear definition of purpose-driven behaviours leading to the desired outcome (Bartholomew et al., 2011).
Implementation	The deliberate actions to implement the campaign or intervention (Fernandez, Ruiter, et al., 2019).
Implementation (RE-AIM)	Refers to the degree to which an intervention or campaign is conveyed as intended (Brug et al., 2022).
In-depth interviews	This is an unstructured, immediate, and personalised interview with each respondent. It usually starts with a general question after which the respondent can talk freely about the topic (Queirós et al., 2017).
Knowledge and awareness (determinant)	The extent to which people have knowledge of the behaviour and are aware of the problem (Brug et al., 2022).

Maintenance (individual level) (RE-AIM)	Refers to the extent in which participants relapse in their old behaviour. It looks at the long-term effects of the intervention or campaign (Brug et al., 2022).
Maintenance (setting level) (RE-AIM)	Refers to the extent to which the intervention or campaign became a routine or an everyday culture in the organisation or target group (Brug et al., 2022).
Meta-analysis	A scientific and objective way of analysing and combining different results to draw an overall conclusion (Ahn & Kang, 2018).
Method	A method describes how to effect a change and directly influences the determinants (Brug et al., 2022).
Model	A model is a concrete, visual, and specific visualisation focusing on the relationship between variables or determinants (Brug et al., 2022).
Modelling (method)	Modelling is a method that is often used with the Social Cognitive Theory. It provides an appropriate reinforcement model for the desired action. Observing and imitating are important as it takes place from a person's perspective, where they can learn from the behaviour of others (e.g., how to perform the behaviour and what the consequences are). It can bring a change in behaviour, knowledge, attitudes, and values (Bartholomew et al., 2011; Brug et al., 2022).
Performance objectives	Specific goals that determine who and what will change as a result of the campaign or intervention (De Craemer et al., 2014; de Lijster et al., 2019; DeSmet et al., 2016; Herrijgers et al., 2022).
Personality traits (determinant)	Five personal characteristics may guide behaviour, namely: extraversion, agreeableness, conscientiousness, openness, and emotional stability (Brug et al., 2022).
Persuasive communication (method)	Persuasive communication refers to the use of arguments or other means to guide persons towards the adoption of an idea, attitude or action (Bartholomew et al., 2011).
Planning group	Consists of research partners who are involved in decision-making and actively participating in the intervention (de Lijster et al., 2019; Herrijgers et al., 2022).

Process evaluation	Evaluation that looks at if the intervention was implemented as planned (Brug et al., 2022).
Prototypes (Double Diamond)	A physical and incomplete version of an idea (Broberg & Grøn, 2022).
Providing cues (method)	When providing cues, the same cues are present at the time of learning and at the time of retrieval (Bartholomew et al., 2011).
Qualitative research	Qualitative research is often not characterised by numbers, but rather seeks to understand a phenomenon or problem (Brug et al., 2022). The aim of qualitative research is to obtain in-depth information in order to analyse the different dimensions of the problem or phenomenon. It is often used in function of motives, opinions, beliefs, and values related to deeper processes and relationships (Queirós et al., 2017).
Quantitative research	Quantitative research is often characterised by research data presented as numbers so that statistics can be applied to it (Brug et al., 2022).
Reach (RE-AIM)	Refers to the proportion of potentially eligible individuals who received or are impacted by the campaign or intervention. It also refers to the characteristics of the participants (Brug et al., 2022).
Reinforcement (method)	Reinforcement means that an individual can link the behaviour to any consequence that increases the rate, frequency, or likelihood of the behaviour (Bartholomew et al., 2011).
Review articles	Give a summary of the current thinking about a topic (Taylor and Francis, 2023).
Risk estimation (determinant)	When behaviour is influenced by people's estimation that the behaviour is associated with risk (Brug et al., 2022).
Scenario-based risk (method)	Scenario-based risk relates to providing information that can help build a picture of how a future loss or accident might occur (Bartholomew et al., 2011).
Self-efficacy expectation or	The degree to which a person expects to be able to perform a behaviour (Brug et al., 2022).

perceived behavioural control (determinant)	
(Semi-) structured interviews	In a (semi-)structured interview, respondents are asked about previous experiences and/or hypothetical situations. Often, a guideline is drawn up that the interviewer follows, allowing answers between respondents to be compared (Queirós et al., 2017).
Social support (method)	Social support refers to a direct positive influence from others (Brug et al., 2022).
Strategy	The practical translation of a method (Bartholomew et al., 1998).
Subjective norm, perceived social influence (determinant)	The person's perceived societal pressure or pressure from significant others (e.g., peers, parents, teachers, etc.) to engage or refrain from engaging in a certain behaviour (Brug et al., 2022).
Survey	A survey can be defined as: "*the collection of information from a sample of individuals through their responses to questions*" (Check & Schutt, 2012, p. 160).
Tailoring (method)	Tailoring means matching interventions or components to previously measured participant characteristics. In this way, tailor-made education can be provided, where information is matched to the needs and wants of individuals in the target group (Bartholomew et al., 2011; Brug et al., 2022).
Theory	A theory is a general, universal, and abstract visualisation (Brug et al., 2022).
Using imagery (method)	Using imagery refers to messages, pictures, etc. that have a similar appearance to something else (Bartholomew et al., 2011).
Workshops	Workshops are used to make new discoveries or develop new ideas that can subsequently be used in an intervention (Benson et al., 2021).

Table 6: Lexicon

Annex II: List with resources

1. Info box 1: quantitative, qualitative and co-creation methods

Title	Author(s)	Link
Qualitative Methods Overview	Moriarty	https://kclpure.kcl.ac.uk/ws/portalfiles/portal/13444568/SSCR_Qualitative_Methods.pdf
Focus groups: A Practical Guide for Applied Research (book)	Krueger & Casey	
Strengths and limitations of qualitative and quantitative research methods	Almeida & Faria	https://www.researchgate.net/publication/319852576_Strengths_and_Limitations_of_Qualitative_and_Quantitative_Research_Methods
Interviews and focus groups in qualitative research: an update for the digital age	Gill & Baillie	https://pubmed.ncbi.nlm.nih.gov/30287965/
Qualitative Analysis on Large Scale Social Media Data for Adolescent Online Safety	Razi & Wisniewsk	https://deliverypdf.ssrn.com/delivery.php?ID=641117074119116071091024082089090024016073027027075062101005081022079120102112122011096100063045053098009088083101109018097029059021009023036093086100016087083082125060082063066118002110020003119012084028124069093121093080127008084104109103092079026110&EXT=pdf&INDEX=TRUE

Table 7: Resources info box 1

2. Info box 2: reports and more information on PRECEDE-PROCEED

Title	Organisation or author(s)	Link
EU Kids Online 2020 survey results from 19 countries	EU Kids Online	https://www.eukidsonline.ch/files/Eu-kids-online-2020-international-report.pdf
Children's experiences with cyberhate	EU Kids Online	https://www.lse.ac.uk/media-and-communications/assets/documents/research/eu-kids-online/reports/euko-cyberhate-22-4-final.pdf
Young people's experiences with sexual messages online. Prevalence, types of sexting and emotional responses across European countries	EU Kids Online	https://www.duo.uio.no/bitstream/handle/10852/88679/2021_SexualMessages_Online.pdf?sequence=4&isAllowed=y
Child safety online: global challenges and strategies	UNICEF	https://www.unicef.org/media/66821/file/Child-Safety-Online.pdf
Evaluating online safety initiatives	UNICEF	https://www.unicef.org/eap/media/10946/file/Evaluating%20Online%20Safety%20Initiatives.pdf
The 2022 National Online Safety Survey – summary report	Social Research Center	https://www.infrastructure.gov.au/sites/default/files/documents/national-online-safety-survey-2022-wcag-accessible-report-25july2022-final.pdf

2020 Child Online Safety Index	DQInstitute	https://www.dfinow.org/wp-content/uploads/2020/02/2020-COSI.pdf
What works to prevent online violence against children?	World Health Organization	https://iris.who.int/bitstream/handle/10665/364706/9789240062061-eng.pdf?sequence=1
Parenting children in the age of screens	PEW Research	https://icactaskforce.org/assets/Pew%20-%20Parenting%20Children%20in%20Age%20of%20Screens%20-%20Complete%207-28-20.pdf
The Role of Caregivers: Safeguarding & Enhancing Youth Resilience Against Harmful Sexual Encounters Online	Thorn	https://info.thorn.org/hubfs/Research/Thorn-RoleOfCaregivers-2022-FullReport.pdf
Young adolescents and digital media: uses, risks and opportunities in low- and middle-income countries: a rapid evidence review	Livingstone, Nandi, Banaji & Stoilova	https://eprints.lse.ac.uk/83753/1/Livingstone_Young_Adolescents_Digital_Media.pdf
Emerging theories in health promotion practice and research (Book)	DiClemente, Crosby & Kegler	
Health communication: from theory to practice (Book)	Schiavo	
Health Behavior (Book)	Glanz, Rimer & Viswanath	

What is a planning model? An introduction to PRECEDE-PROCEED (Scientific article)	Crosby & Noar	https://onlinelibrary.wiley.com/doi/full/10.1111/j.1752-7325.2011.00235.x

Table 8: Resources info box 2

3. Info box 4: Delphi method

Title	Author(s)	Link
Current validity of the Delphi method in social sciences	Landeta	https://www.sciencedirect.com/science/article/pii/S0040162505001381
Planning health promotion programs: an intervention mapping approach (Book)	Bartholomew, Parcel, Kok, Gottlieb & Fernandez	
Utilizing and Adapting the Delphi Method for Use in Qualitative Research	Brady	https://journals.sagepub.com/doi/10.1177/1609406915621381
Delphi method	Grime & Wright	https://www.researchgate.net/profile/Megan-Crawford-2/publication/305909817_Delphi_Method/links/5cd1e99e458515712e98acd3/Delphi-Method.pdf

Table 9: Resources info box 4

4. Info box 5: review articles and meta-analyses on e-safety topics

Title	Type	Author(s)	Link
Keeping children safe online: a literature review	Review article	Mitra	https://www.researchgate.net/publication/347442389_Keeping_children_safe_online_A_literature_review
Youth Internet Safety Education: Aligning Programs With the Evidence Base	Review article	Finkelhor, Walsh & Collier	https://journals.sagepub.com/doi/full/10.1177/1524838020916257
Cybersecurity awareness for children: A systematic literature review	Review article	Quayyum, Cruzes & Jaccheri	https://www.sciencedirect.com/science/article/pii/S2212868921000581
Cyberbullying Among Adolescents and Children: A Comprehensive Review of the Global Situation, Risk Factors, and Preventive Measures	Review article	Zhu, Huang, Evans & Zhang	https://www.frontiersin.org/articles/10.3389/fpubh.2021.634909/full
Lines of Action for Sexting Prevention and Intervention: A Systematic Review	Review article	Ojeda & Del Rey	https://link.springer.com/article/10.1007/s10508-021-02089-3
The current status of Cyberbullying research: a short review of the literature	Review article	Vismara, Girone, Conti, Nicolini, Dell'Osso	https://www.sciencedirect.com/science/article/pii/S2352154622000584

Artificial intelligence in cyber security: research advances, challenges, and opportunities	Review article	Zhang, Ning, Shi, Farha, Xu, Xu, Zhang & Choo	https://link.springer.com/article/10.1007/s10462-021-09976-0
Understanding Social Media Literacy: A Systematic Review of the Concept and Its Competences	Review article	Polanco-Levicán & Salvo- Garrido	https://www.mdpi.com/1660-4601/19/14/8807
Consensual and Non-consensual Sexting Behaviors in Adolescence: A Systematic Review	Review article	Barroso, Marinho, Figueiredo, Ramião & Silva	https://link.springer.com/article/10.1007/s40894-022-00199-0
A Systematic Review on Hate Speech among Children and Adolescents: Definitions, Prevalence, and Overlap with Related Phenomena	Review article	Kansok-Dusche, Ballaschk & Bilz	https://journals.sagepub.com/doi/full/10.1177/15248380221108070
Being a cybervictim and a cyberbully – The duality of cyberbullying: A meta-analysis	Meta-analysis	Lozano-Blasco, Cortés-Pascual & Latorre-Martínez	https://www.sciencedirect.com/science/article/pii/S0747563220301977
Are Youth Sexting Rates Still on the Rise? A Meta-analytic Update	Meta-analysis	Mori, Park, Temple & Madigan	https://www.sciencedirect.com/science/article/pii/S1054139X21005589
Perpetrators' Identity in Online Crimes Against	Meta-analysis	Sutton & Finkelhor	https://jamanetwork.com/journals/jamapediatrics/article-abstract/1840250

Children: A Meta-Analysis			
Effectiveness of Digital Health Interventions in Reducing Bullying and Cyberbullying: A Meta-Analysis	Meta-analysis	Chen, Chan & Ip	https://journals.sagepub.com/doi/full/10.1177/15248380221082090

Table 10: Resources info box 5

5. Info box 8: examples of the Theory of Planned Behaviour

Title	Author(s)	Link
Predicting adolescent perpetration in cyberbullying: an application of the Theory of Planned Behaviour	Heirman & Walrave	https://www.psicothema.com/pdf/4062.pdf
Under pressure to sext? Applying the theory of planned behaviour to adolescent sexting	Walrave, Heirman & Hallam	https://www.tandfonline.com/doi/epdf/10.1080/0144929X.2013.837099?needAccess=true
Determinant factors of cyberbullying: an application of Theory of Planned Behaviour	Jafarkarimi, Saadatdoost, Hiang Sim & Hee	https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8002521

Table 11: Resources info box 8

6. Info box 9: examples of the Social Cognitive Theory

Title	Author(s)	Link
Cyber-Bullying Among University Students: An Empirical Investigation from the Social Cognitive Perspective	Xiao & Yee Man Wong	https://www.researchgate.net/profile/Randy-Yee-Man-Wong-2/publication/263138446_Cyber-bullying_among_University_Students_An_Empirical_Investigation_from_Social_Cognitive_Perspective/links/54df5d2a0cf2953c22b1e862/Cyber-bullying-among-University-Students-An-Empirical-Investigation-from-Social-Cognitive-Perspective.pdf
Adolescents' Safe Online Behaviour: A Multi-Factor Analysis Based on Social Cognitive Theory	Mubarak & Mani	https://web.archive.org/web/20200324053405id_/https://aisel.aisnet.org/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1017&context=pacis2015
A meta-analysis of factors predicting cyberbullying perpetration and victimization: From the social cognitive and media effects approach	Chen, Ho & Lwin	https://journals.sagepub.com/doi/epub/10.1177/1461444816634037
Bystander reactions to cyberbullying and cyberaggression: individual, contextual, and social factors	Machackova	https://www.sciencedirect.com/science/article/pii/S2352250X20300993

Table 12: Resources info box 9

7. Info box 10: examples of the Protection Motivation Theory

Title	Author(s)	Link
Risky electronic communication behaviors and cyberbullying victimization: An application of Protection Motivation Theory	Doane, Boothe, Pearson & Kelley	https://www.sciencedirect.com/science/article/pii/S0747563216300620
Using protection motivation theory in the design of nudges to improve online security behavior	van Bavel, Rodríguez-Priego, Vila & Briggs	https://www.sciencedirect.com/science/article/pii/S1071581918306475
Teachers' role in youth protection against cyberbullying: the utility of integrated protection motivation and attachment theories	Benrazavi	https://web.archive.org/web/20210501174008id_/https://hss-opus.ub.ruhr-uni-bochum.de/opus4/frontdoor/deliver/index/docId/7928/file/diss.pdf
Empirical study of knowledge withholding in cyberspace: Integrating protection motivation theory and theory of reasoned behavior	Wu	https://www.sciencedirect.com/science/article/pii/S0747563219304480
What we think we know about cybersecurity: an investigation of the	de Kimpe, Walrave, Verdegem & Ponnet	https://www.tandfonline.com/doi/full/10.1080/0144929X.2021.1905066

relationship between perceived knowledge, internet trust, and protection motivation in a cybercrime context		
What motivates users to adopt cybersecurity practices? A survey experiment assessing protection motivation theory	Dodge, Fisk, Burruss, Moule jr. & Jaynes	https://onlinelibrary.wiley.com/doi/full/10.1111/1745-9133.12641

Table 13: Resources info box 10

8. Info box 11: examples of the Health Belief Model

Title	Author(s)	Link
Cyber-victimization preventive behavior: A health belief model approach	Dodel & Mesch	https://www.sciencedirect.com/science/article/pii/S0747563216307853
School Administrator Perceptions of Cyberbullying Facilitators and Barriers to Preventive Action: A Qualitative Study	Young, Tully & Ramirez	https://journals.sagepub.com/doi/epub/10.1177/1090198116673814

Table 14: Resources info box 11

9. Info box 12: examples of the Prototype Willingness Model

Title	Author(s)	Link
To share or not to share? Adolescents' self-disclosure about peer relationships on Facebook: An application of the Prototype Willingness Model	Van Gool, Van Ouytsel, Ponnet & Walrave	https://www.sciencedirect.com/science/article/pii/S0747563214006414
Whether or not to engage in sexting: Explaining adolescent sexting behaviour by applying the prototype willingness model	Walrave, Ponnet, Van Ouytsel, Van Gool, Heirman & Verbeek	https://www.sciencedirect.com/science/article/pii/S0736585315000295
Adolescents' sexy self-presentation on Instagram: An investigation of their posting behavior using a prototype willingness model perspective	Van Ouytsel, Walrave, Ojeda, Del Rey & Ponnet	https://www.mdpi.com/1660-4601/17/21/8106
Adolescents' intention and willingness to engage in risky photo disclosure on social networking sites: Testing the prototype willingness model	Paluckaitė & Žardeckaitė-Matulaitienė	https://cyberpsychology.eu/article/view/13053/11978

Table 15: Resources info box 12

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