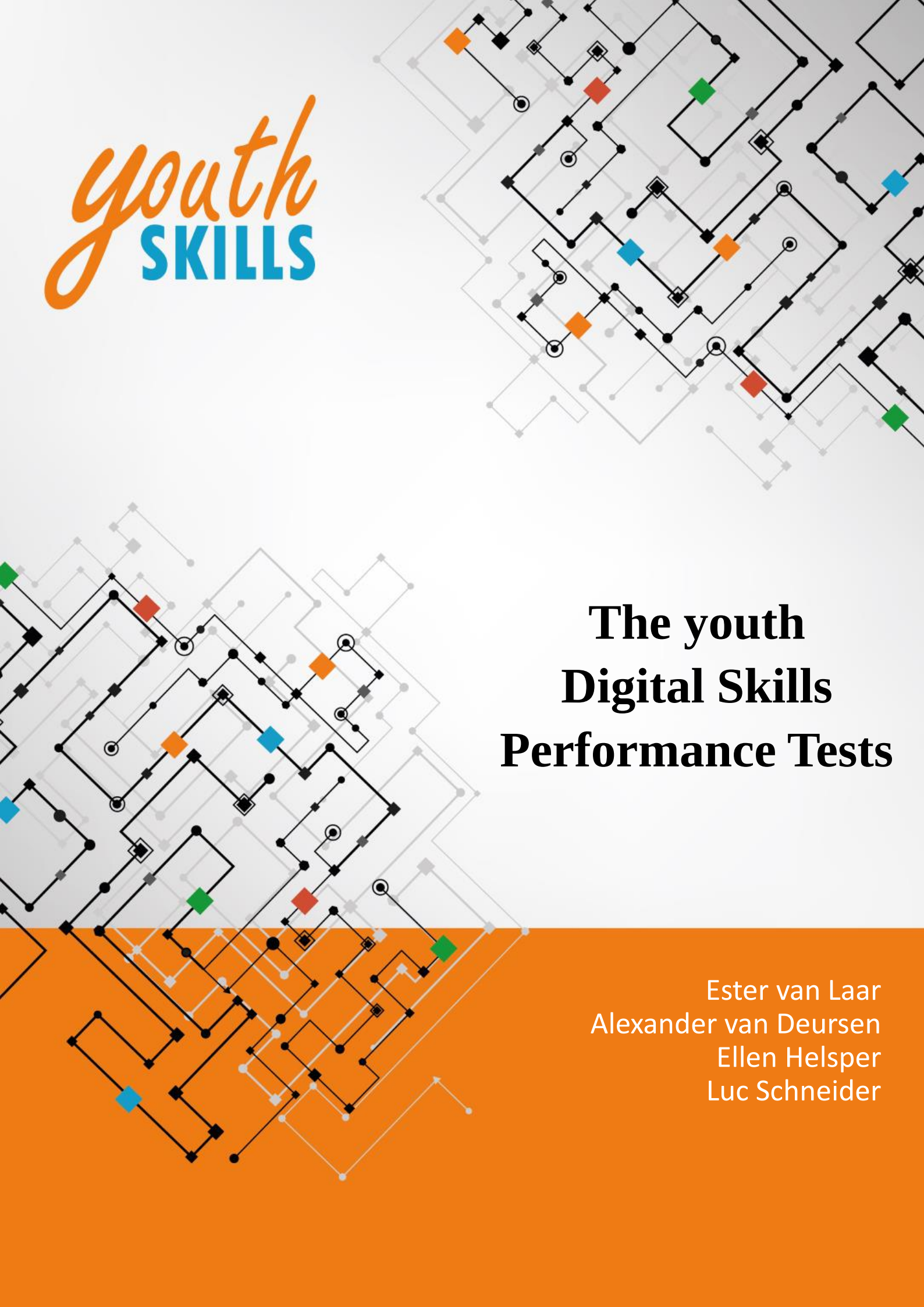

The youth Digital Skills Performance Tests

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Please cite this report as:

Van Laar, E., van Deursen, A.J.A.M., Helsper, E.J., & Schneider, L.S. (2022). *The youth Digital Skills Performance Tests: Report on the development of real-life tasks encompassing information navigation and processing, communication and interaction, and content creation and production skills*. KU Leuven, Leuven: ySKILLS.

DISCLAIMER

This project has received funding from the European Union's Horizon 2020 Research & Innovation programme under Grant Agreement no. 870612. The information in this deliverable reflects only the authors' views and the European Union is not liable for any use that may be made of the information contained therein.

DISSEMINATION LEVEL

Public

Project:	ySKILLS – Youth Skills
GA:	870612
Call:	H2020-SC6-TRANSFORMATIONS-07-2019
Type of action:	RIA

The youth Digital Skills Performance Tests

Report on the development of real-life tasks encompassing information navigation and processing, communication and interaction, and content creation and production skills

Work Package 4 – Deliverable 4.3

Due date:	**31 July 2022**
Submission date:	**29 July 2022**
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Executive summary

This report discusses the development of a high-quality measurement instrument – real-life performance testing – for a range of digital skills amongst young people with the overall aim of providing a comprehensive overview of the methodological issues that had to be addressed. Carefully designed and implemented performance tests measure actual actions and what is regarded as real-life ways of engaging with technology. Areas considered are the constraints of various types of performance tests and the coding and analytical procedures involved. The tests cover three different dimensions of skills: (1) information navigation and processing skills; (2) communication and interaction skills; and (3) content creation and production skills. The design of the performance tests is discussed in light of the findings of developing and testing cross-nationally compatible tasks.

The developed performance tests provide valuable insights into information navigation and processing, communication and interaction, and content creation and production skills. In addition, the development process itself provided valuable lessons for future applications. Based on cross-national experiences with the developed tests, this report demonstrates features of test development and application procedures to improve the quality of such assessments. Our experiences target specific issues of performance test development beyond the well-known disadvantages of being time and labour intensive. The aim is to expand knowledge on how to design a performance test and encourage other researchers to use this direct assessment method of digital skills.

1 Introduction

1.1 The ySKILLS project

The ySKILLS (Youth Skills) project is funded by the European Union (EU's) Horizon 2020 programme. It involves 15 partners from 13 countries to enhance and maximise the long-term positive impact of the information and communications technology (ICT) environment on multiple aspects of wellbeing for children and young people by stimulating resilience through the enhancement of digital skills. Starting from the view that children are **active agents in their own development**, ySKILLS examines how digital skills mediate the risks and opportunities related to ICT use by 12- to 17-year olds in Europe (see https://yskills.eu).

The overarching aim of ySKILLS

To enhance and maximise the long-term positive impact of the ICT environment on multiple aspects of wellbeing for all children by stimulating resilience through the enhancement of digital skills.

ySKILLS will **identify the actors and factors** that undermine or can promote **children's wellbeing** in a digital age. The relations between ICT use and wellbeing will be critically and empirically examined over time.

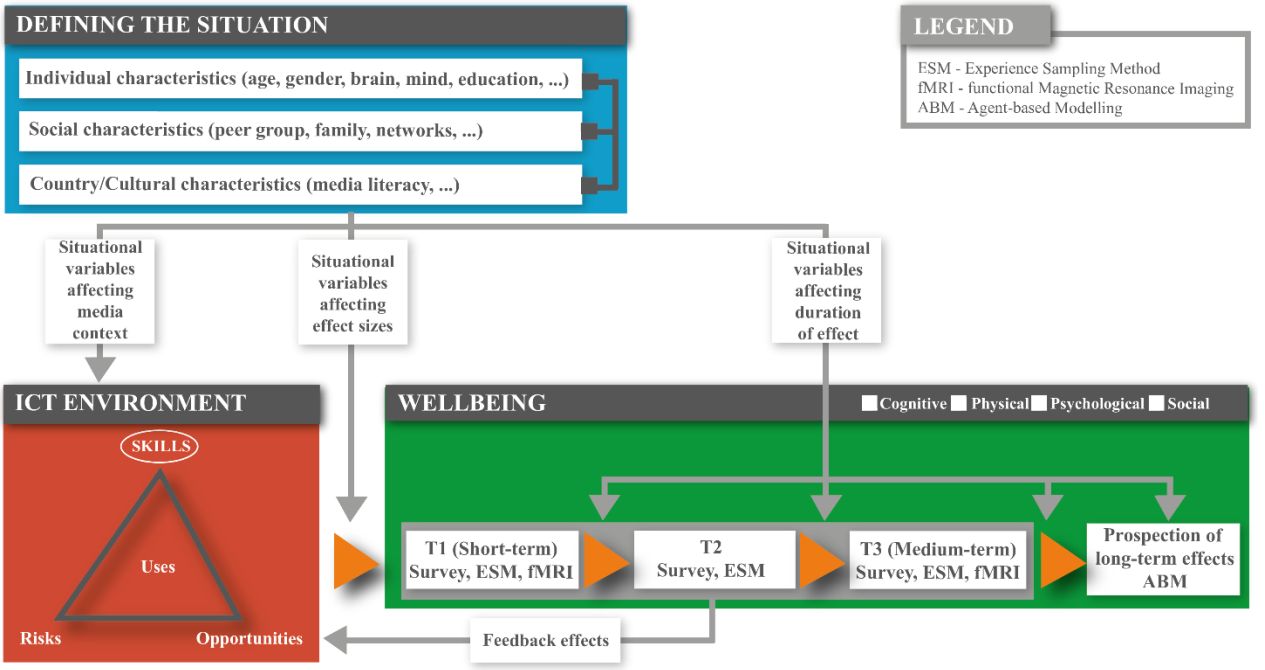
ySKILLS' research objectives

1. To acquire extensive knowledge and better measurement of digital skills.
2. To develop and test an innovative, evidence-based explanatory and foresight model predicting the complex impacts of ICT use and digital skills on children's cognitive, physical, psychological and social wellbeing.
3. To explain how at-risk children (as regards their mental health, ethnic or cultural origin, socioeconomic status and gender) can benefit from online opportunities despite their risk factors (material, social, psychological).
4. To generate insightful evidence-based recommendations and strategies for key stakeholder groups in order to promote European children's digital skills and wellbeing.

This report contributes to achieving objective 1 by reporting on the development, application and results of digital skills performance tests conducted among children. In the tests, children had to complete *actual tasks* on the Internet, directly measuring digital skills.

ySKILLS has proposed, and will continue to develop, its **conceptual model** (see Figure 1):

Figure 1. ySKILLS CONCEPTUAL MODEL



This report focusses on the bottom left element of the ySKILLS model – the **conceptualisation and measurement of digital skills** as part of young people's ICT environment. The development is used in the ySKILLS three-wave longitudinal panel survey with 12- to 17-year-olds (see https://yskills.eu). More specifically, it is applied among a subsample after the second wave of data collection. In an earlier review, Haddon et al. (2020) concluded that some elements of digital skills were not measured or that it was unclear whether the measures were of sufficient quality to measure actual skills. Both limitations are addressed with the approach described in the current report.

1.2 This report

This report describes the development of a task-based measurement instrument for a range of digital skills amongst young people. In prior work, Helsper et al. (2021) proposed the youth Digital Skills Indicator (yDSI), an extensively cross-nationally validated measurement tool with 31 items, distributed over digital skills and digital knowledge questions, that can be used for large-scale population research. Although the yDSI was validated through cognitive interviews and pilot surveys and the items have high discriminant validity across skills dimensions, it is not a perfect measure of skills as it depends partly on perceptions and self-evaluations. The most externally valid way to measure digital skills are performance tests that give participants the opportunities to actually demonstrate their skills (Aesaert & van Braak, 2015; van Deursen, van Dijk, & Peters, 2011). Performance tests are generally built of tasks that require participants to perform an activity or construct a response (Claro et al., 2012). As such, performance tests have the potential to provide proximal measures of digital skills (Aesaert & van Braak, 2015). A recent systematic literature review illustrates this when looking at studies measuring children's digital skills using performance tests and self-reported surveys (Haddon et al., 2020). The evidence shows that boys self-report higher digital skills levels in comparison to girls, whereas no such difference is found in studies using performance tests. In general, it is expected that performance tests more objectively measure digital skills as people tend to under- or overestimate their own skill levels (Hargittai, 2005; van Deursen & van Dijk, 2010).

While performance testing for (specific) digital skills is more common in educational settings, the number of studies that apply this method is relatively scarce, as it is costly and time consuming. This lack in application of performance tests – especially tests that address a broad range of digital skills – results in a gap in the literature around what to consider when developing a direct assessment of several important digital skills through performing real-life tasks. Initial performance tests focussed mainly on dimensions such as technical and information searching skills (Hargittai, 2005; van Deursen & van Dijk, 2010). An extended perspective on assessments of digital skills as a broader concept is still lacking (Siddiq et al., 2016; Helsper et al., 2021). Beyond being time consuming and cost prohibitive, performance tests are often context specific making them difficult to apply across situations and countries. Consequently, tasks are mainly performed on a small-scale, in one country, for example in an educational setting. Cross-country comparisons are largely missing (Siddiq et al., 2016), even when data from performance tests in different countries is needed to generalize conclusions (Gui & Argentin, 2011). To address this gap, this report reflects on performance testing as a methodology to measure a broad range of digital skills in different countries. The aim is to provide a comprehensive overview of the methodological issues that have to be considered. The design of the performance test is discussed in light of the findings of a test that put particular emphasis on the development of cross-nationally applicable tasks. This report aims to answer the following question:

What should be taken into consideration when designing, implementing, and analysing performance tests to measure digital skills (referring to information navigation and processing, communication and interaction, and content creation and production) in different countries?

The next chapter looks at the conceptual framework that underpins the performance tests. After conceptualisation, an overview of the most common existing digital skills measures is provided in Chapter 3. Then, Chapter 4 continues with the initial version of the performance test conducted in Belgium, Estonia, Portugal, and the Netherlands. Based on this initial test, we address a variety of issues to consider when using performance tests as a measurement instrument for digital skills. The issues that surfaced were used as input to facilitate the development of the final performance test instrument. This final test is presented in section 5 of this report and is designed to be used among a subsample of children participating in the second wave of survey data collection for the ySKILLS project. The final test is available in the six languages of the ySKILLS survey partners who applied it (i.e., Estonian, Finnish, German, Italian, Polish and Portuguese). It is also available in Dutch and English. This report includes the English version; the other versions are available on the ySKILLS website (https://yskills.eu).

2 Conceptualisation of digital skills

The development of the performance test was largely informed by the youth Digital Skills Indicator (yDSI) (Helsper et al., 2021). In this study, a framework of four dimensions that constitute digital skills was derived from a review of the literature:

1. Technical and operational skills;
2. Information navigation and processing skills;
3. Communication and interaction skills;
4. Content creation and production skills.

Furthermore, across all four digital skills dimensions a distinction was made between functional and critical aspects. The former is concerned with being able to use the functionalities of ICTs and the latter with understanding how and why ICTs are designed and content is produced in certain ways. People need to be able to use that knowledge in managing interactions in and with digital spaces. The critical aspects of digital skills dimensions are associated with more active, constructive participation in societies that are increasingly digital. The functional and critical aspects are reflected in all four dimensions. In the current report, the focus lies on information navigation and processing, communication and interaction, and content creation and production skills. Technical skills are not addressed directly in specific tasks but are integrated in the tasks developed as they are a necessary element to perform on the other skills tasks.

Sub-components for each dimension of digital skills were conceptualised based on a literature review (Helsper et al., 2021). Information navigation and processing skills are concerned with "the ability to find, select and critically evaluate digital sources of information" (p. 15). This concerns navigation (i.e., searching for and orientating of information), the interpretation and understanding of information (i.e., understanding hyperlink structure and symbols, selecting information), and the evaluation of digital sources of information (i.e., verifying the trustworthiness).

Communication and interaction skills are defined as "the ability to use different digital media and technological features to interact with others and build networks as well as to critically evaluate the impact of interpersonal mediated communication and interactions on others" (p. 15). Sub-components include affordance (i.e., matching media, managing contacts), privacy (sharing information of self and others), and netiquette (understanding normative and non-discriminative behaviour).

For content creation and production skills, the following definition is used: "the ability to create (quality) digital content and understand how it is produced and published and how it generates impact" (p. 15). Consequently, sub-components can be further identified by affordance (i.e., using multimodality), quality (reaching others, attracting attention), and ownership (persuading others, protecting rights).

While it is widely acknowledged that the concept of digital skills is multidimensional, there is a lack of valid measures related to social interaction and content creation. Furthermore, functional aspects seem to be more commonly measured than critical aspects of digital skills. In summary, the initial approach to the definition of digital skills is shifting from a restricted technical and functional orientation toward a wider perspective that considers (critical) social and content creation skills.

3 Types of digital skills measurements

Research on the measurement of digital skills can be broadly divided into indirect measurements (self-efficacy or self-assessments) and direct measurement (observation or performance testing).

Indirect measurements of digital skills

A considerable body of work defines and measures digital skills. Several studies phrased their questions in terms of usage or self-efficacy rather than as direct measures of skills. A broadly applied method to measure digital skills are surveys in which respondents are asked which activities they have carried out online. The level of digital skills is derived from the reported intensity of engagement and variety of activities undertaken using ICTs. The proxies of usage, although correlated, do not measure actual digital skill levels (Helsper & van Deursen, 2018). The main weakness of such indirect measurement is that undertaking an activity (or not) does not mean that someone has (or lacks) the required skills (Haddon et al., 2020). Furthermore, it is also difficult for people to remember correctly how often they performed a certain activity. An advantage of this approach is that it facilitates large-scale, cross-national research. Another commonly used method is to measure respondents' self-efficacy (see for example Aesaert & van Braak, 2014). This method measures the confidence people have in themselves as users and not what people are able to do. As a result, they measure confidence instead of skills. As such, measurements give an estimation of how good people think they are in relation to a range of skills.

Self-assessments in surveys are the most used method to measure digital skills. Many scholars have asked respondents to evaluate how well they perform in relation to a range of skills (van Deursen & van Dijk, 2011). The method is relatively uncomplicated and allows to present many questions on a wide range of skills in a short period of time (Allmann & Blank, 2021). This, in combination with the relatively easy scoring of skill levels, makes it a rapid and cost-effective method to measure digital skills. A disadvantage is that people cannot accurately assess their own performance. The assessment of one's own performance is influenced by someone's expectations of a satisfactory skill level and the group with whom they compare themselves (Talja, 2005). As a result, the skill levels measured are sensitive to interpretation and judgment differences.

Another disadvantage is that self-assessments are susceptible to social desirability bias. People have the tendency to present themselves in the most favourable manner relative to the perceived social norms (King & Bruner, 2000). Specific groups of people have the inclination to over- or underestimate their own performance (Merritt, Smith, & Di Renzo, 2005). For example, research shows that men and younger people tend to overestimate their skill levels when comparing self-reports with objective tasks (Palczyńska & Rynko, 2021). The results support the development of measurements in which skills are measured directly as self-perceived measures of digital skills. However, individuals' lack of awareness of the skills distribution and of where they are positioned might result in inaccurate estimations. Consequently, conclusions drawn from self-reported digital skills can have severe shortcomings in terms of validity. Nevertheless, while there are some clear limitations to self-reports, they are an appropriate method when designed and validated properly (Helsper et al., 2021). Proper validation occurs through structural equivalence testing and validation at a smaller scale, including cognitive interviews and comparisons with performance tests results. Survey instruments allow for large scale skills testing in a cost and time efficient way.

Direct measurement of digital skills

Performance testing is a preferable method from the perspective of external validity (Aesaert, van Nijlen, Vanderlinde, & van Braak, 2014). Although performance testing is a time and labour-intensive process, this method relies on the completion of tasks to demonstrate skill levels. Thus, the assessments are based on the analysis of an individual's directly demonstrated performance and therefore more likely to provide accurate reflections of a person's skill levels (Jin et al., 2020). Scholars gather data on people's actual performance by analysing observable behaviour, such as the

performance of tasks that require specific information (e.g., choosing appropriate key words for online searches) or strategies (e.g., using advanced search settings in search engines).

Several types of performance tests that require participants to display their skills have been developed. Some used constrained response formats in which the participant needs to interact with a test environment and select the right answer from a range of options (see for example Claro et al., 2012; Hatlevik & Christophersen, 2013). Other studies used test environments in which software is developed that simulate real-life ICT applications. The participants need to demonstrate their skills by completing simulation-based tasks within this environment (see for example Aesaert et al., 2014; Fraillon & Ainley, 2010). Assessments that rely on an interactive standardised test are more real-life and therefore more valid than conventional item designs such as a multiple-choice test, as the results give insight into the specific skill problems experienced (Wirth, 2008). However, participants who already have some experience with a particular software programme probably have an advantage (Fraillon, 2018). This may create bias because a person's skill level is affected by the degree of familiarity with the software in a testing situation. Also, the designers must make decisions about which aspects to include in the simulation and which to omit (Engelhardt et al., 2021). Additionally, these types of tests often include a few relatively large assessment tasks and consequently the testing situation can have a large effect on the performance (Jin et al., 2020).

Another type of performance testing is where participants are presented with tasks that represent a fully real-life situation in an open internet environment. They are characterised using open-ended tasks and the monitoring of the participant while performing these tasks (see for example Eshet-Alkali & Amichai-Hamburger, 2004; van Deursen & van Dijk, 2009). Thus, to evaluate skills performance, the participant performs real-life tasks on a computer while being observed by the researcher (Litt, 2013). A test is considered real-life when the tasks are designed to apply skills to real-life situations and require participants to develop their own responses rather than selecting from given answers. A main advantage is that the results give insight into the specific skill problems experienced (van Deursen et al., 2014). The difficulties of using real-life performance tests include the number of skills that can be measured, the creation of tasks that can be applied cross-nationally, and the development of a systematic or self-explanatory coding scheme (see for example Gui & Argentin, 2011). This type of performance test allows for the in-depth investigation of several of the skill indices defined in the previous section. However, the limited availability of performance tests shows that their potential has neither been fully exploited nor fully recognised (Siddiq et al., 2016) and are, therefore, in need of further research.

This report describes the design of performance tests to measure different aspects of digital skills. The focus lies on the analysis of performance-based rather than self-assessed digital skills data. Based on a conceptual skills framework that underpins the assessment, a test is developed for children and young people aged between 12 and 17 years. The results are based on the development of a performance test as well as the coding and scoring of answers to tasks. Details on the design and implementation can serve as a guide for future performance tests and thereby add to the literature on digital skills measurements.

4 Performance test – Initial version

4.1 Introduction

Based on the detailed descriptions that the yDSI instrument specified for each skill dimension, a first version of a performance test with real-life tasks was developed. The choice of real-life tasks had the advantage that children complete tasks that require them to apply their digital skills in a realistic context. The creation of tasks was an *iterative process*, with regular feedback provided by the research team and country partners. After several rounds, the test was considered sufficient for testing:

- A first small round with cognitive interviews was conducted with five children in the Netherlands and five children in the UK (children were 12, 14, and 16 years old). Their feedback provided insights into the test comprehensibility and difficulty and whether the tasks were appropriate for children of different ages in different countries.
- After the cognitive interviews, we conducted an actual test with 143 children in four countries. See Table 1. For validity purposes, the test strived for diversity in gender and age groups. In both Estonia and Portugal three classroom sessions were held within one school. Estonia sampled 6th grade children (mostly 12-year-olds), 8th grade children (mostly 14-year-olds) and 10th grade children (mostly 16-year-olds). The sample of Portugal consisted of 8th grade children (aged 12-13), 9th grade children (aged 14-15), and 12th grade children (aged 16-17). Belgium and the Netherlands together performed 34 individual sessions.

Table 1. SAMPLE

		Estonia		Portugal		Belgium/ Netherlands		Total	
		N	%	N	%	N	%	N	%
Gender	Boy	31	53	22	43	13	38	66	46
	Girl	25	43	29	57	21	62	75	52
	Other	2	3	0	0	0	0	2	1
Age	12-13	17	29	16	31	1	3	34	24
	14--15	23	40	17	33	10	29	50	35
	16-17	18	31	18	35	23	68	59	41
	Total	58		51		34		143	

After the cognitive interviews and performance tests, the instrument was evaluated carefully. The considerations are discussed in the next section, followed by the conclusions.

4.2 Development of the initial version

The first version of the performance test consisted of five parts. Each part roughly corresponds to a particular skills (sub)dimension. Technical and operational skills were not separately represented but integrated in all the developed tasks as these are considered a necessary condition.

Part 1. Information navigation and processing: Navigating

The first part involved four information navigation tasks in which children searched for fact-based information with one correct answer. These tasks tested the ability of the child to find and select digital sources of information. *Netflix* and *dinosaurs* were chosen as topics of investigation:

- *Task 1.1: Netflix is a very popular streaming service that allows members to watch a wide variety of TV shows, movies, documentaries and more.*

Please open a new window and use a search engine such as Google, Bing, or Duckduckgo, to find out who founded the streaming platform.
The founders of Netflix are ...

- *Task 1.2: In 2018, Netflix released their first interactive film.*
  Please open a new window and use a search engine such as Google, Bing, or Duckduckgo, to find out what the name of this movie was.
  This time you only want to search for news items published in 2018.
  The name of the movie is ...

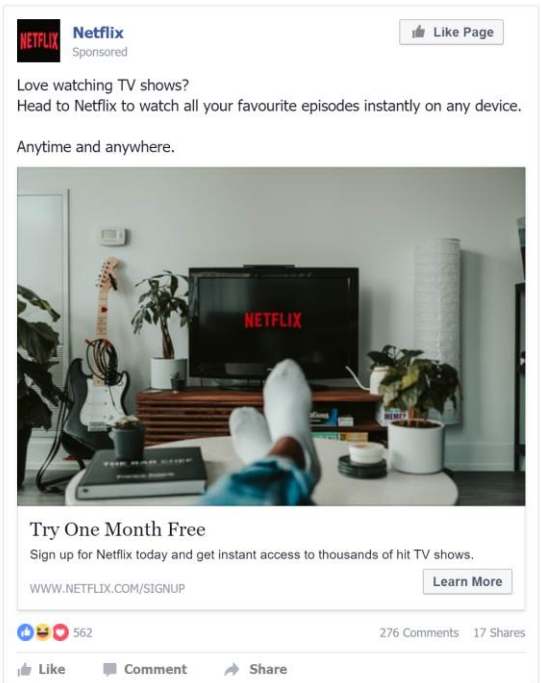
- *Task 1.3: A popular movie on Netflix is 'Jurassic Park'. Dinosaurs lived in the Mesozoic era. This era includes three periods.*
  Please open a new window and search the internet to find the names of the three periods.
  The names of the three periods are ...

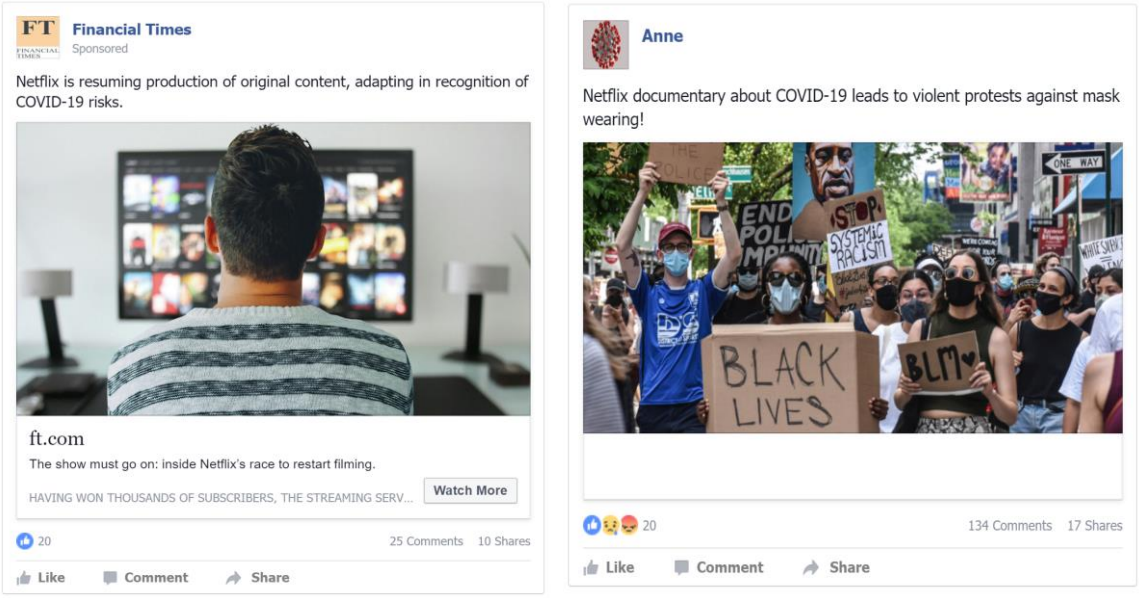
The children were asked to use the internet and start their search by using a search engine of their choice. The following aspects were coded in all tasks: (1) the keywords used, (2) the number of searches, (3) whether an evaluation of the answer took place, and (4) whether the correct answer was found. The assessment was primarily based on whether a correct answer was given (no/yes). If the correct answer was not found, the additional codings were used to find a more detailed explanation for not succeeding. In task 1b, children were asked to narrow down their search to news articles and a specific period of time. The coding checked whether the search was specified in this way or not.

Part 2. Critical information navigation and processing: Evaluating

In the second part, four social media posts in the categories of advertisement, phishing, news, and fake news were presented:

- *Task 2: In what follows we present you with four messages.*
  Please read them carefully and explain for each what you think it is trying to do and what else you note about the post.

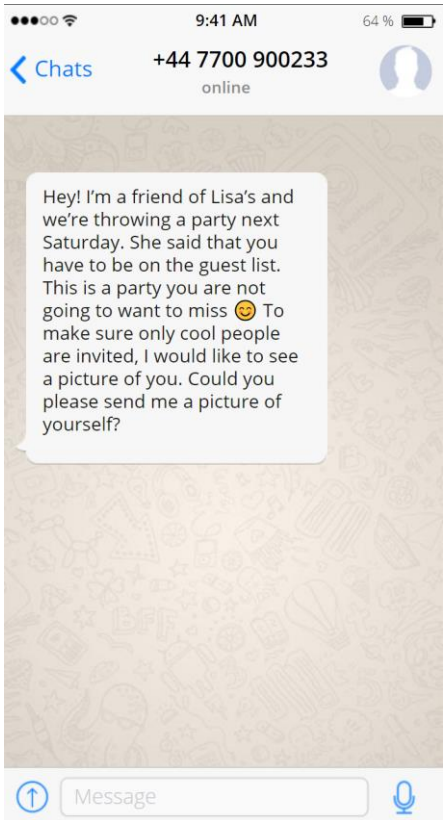




This task involved the critical processing and evaluation of digital sources of information. They were asked to take a close look at the textual and visual information. After each post, an open question was asked about its purpose. The coding scheme scored whether the intention of the maker of the post (commercial, scam, news, fake news) was correctly identified or not (no/yes).

Part 3. Communication and interaction: Protecting

The third part consisted of two tasks in which interactions were evaluated. In the first task, the children were presented with a scenario in which they received a message from an unknown person:

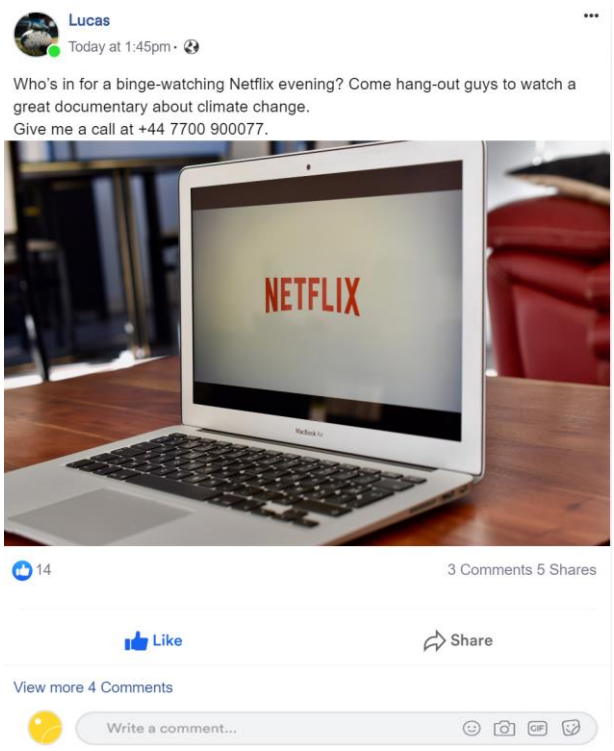


The child was invited to a party and asked to send a photo. After the message, an open question was asked about how the child would respond. This task tested the ability to react to unwanted online contact.

- *Task 3.1: What would you do when you receive this message?*
  Explain why:

The coding was based on whether the picture would be shared or not (correct) and the reasons for (not) sharing a picture.

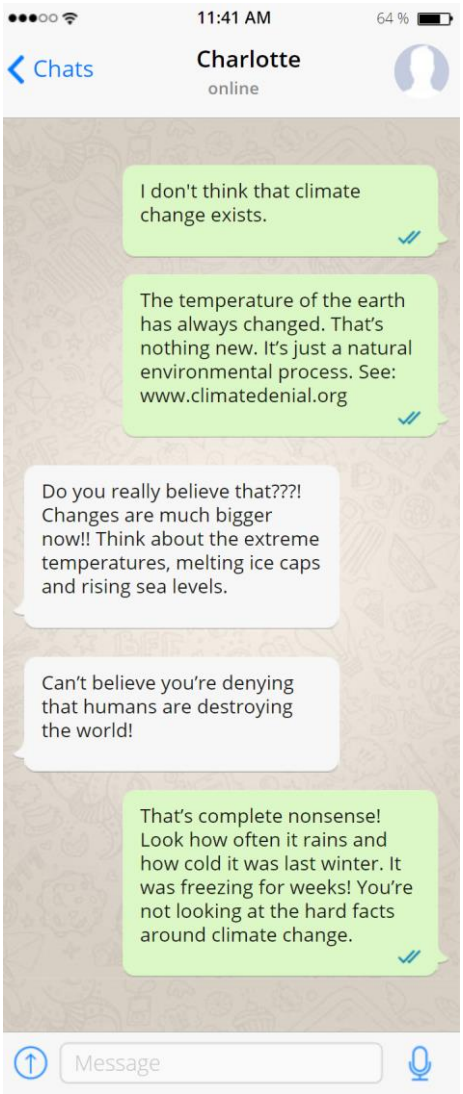
In the second task, the children were presented with two social media posts, see below. The first post showed a telephone number shared with the public and the second a bikini photo shared only with friends. This task tested the child's awareness of what to share online. The coding scheme scored whether the post was considered appropriate or not appropriate and the accompanying explanations. Both assessment and explanation had to be correct. For the bikini post, children could argue that it was either appropriate because it was only shared with friends or inappropriate since it was too revealing, even for friends.

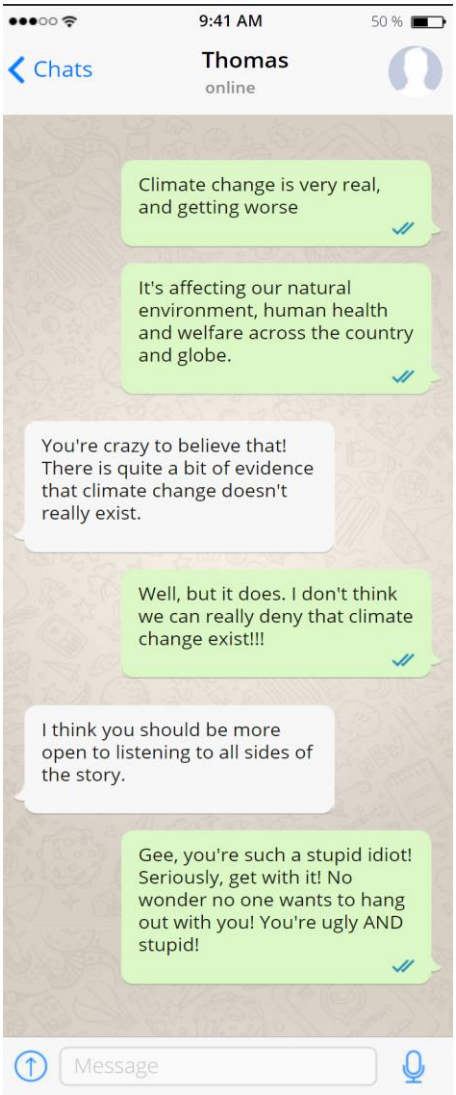


- *Task 3.2: Could you explain for each post why it is appropriate or inappropriate to post them on social media like that?*

Part 4. Critical communication and interaction: Netiquette

In the fourth part, children were presented with two WhatsApp conversations about climate change. This task involved the critical evaluation of the impact of interpersonal mediated communication and interactions on others. In each chat, one person denies climate change and the other advocates that it exists. In the second chat (Task 4b), the person who is arguing that climate change is real and problematic becomes insulting. After both chat screens, an open question was asked about whether there was something problematic in the conversation. The coding scheme scored whether the chat was problematic or not problematic and the accompanying explanations. Both aspects had to be correct in order to be rated as successful task completion. Only the second chat conversation with the aggressive element should have been considered problematic.





- *Task 4: Do you think anything in these two chats is problematic?*
  If so, please describe what seems problematic to you below.
  If not, please describe below why nothing is problematic for you below.

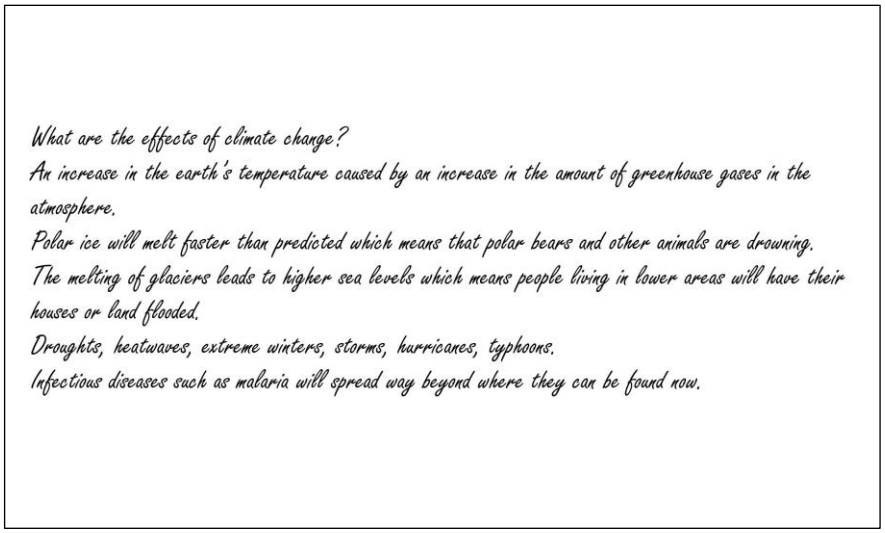
Part 5. Content creation and production: Producing, attracting, and understanding

The fifth part involved five content creation and production tasks. These tasks tested the ability of the child to create quality content and to reflect on how content they consume is produced and generates impact.

- *Task 5.1: Below is an animated GIF image:*

  You would like this image ***to go viral*** *on social media (e.g. Facebook, Instagram, Snapchat, Pinterest, TikTok, etc).*
  Please describe how you would do that:

- *Task 5.2: You are preparing a group presentation on the effects of climate change for school. One of your fellow group members sends you the following slide by e-mail.*



  Are there other ways than e-mail to share this slide with your group members? If so, please describe how you would do this:

Task 5.1 focused on sharing content online with a larger public. The children had to mention ways to make a graphics interchange format (GIF) go viral. This open-ended task coded the different ways mentioned. Answers coded as correct were using hashtags, sharing with friends, and asking for reposts. Task 5.2 focused on other ways of sharing a presentation than by email. The coding consisted of scoring the different suggestions for sharing a presentation. The use of programmes for file sharing and cloud computing were examples of correct answers. To be assessed as successful task completion, children had to provide at least one correct answer.

- *Task 5.3: You want to improve the slide. Please describe how you would do this:*

- *Task 5.4: Please take 5 minutes to actually create an improved slide. If you had not thought of this already, please add a video of an animal to the presentation that you can download from Pixabay animal videos. After you have added the video, please upload the new slide here:*

In Task 5.3, the children were asked to reflect on the design of the presentation. Here, the different suggestions for slide improvements were scored. Examples of correct improvements that can be answered were type of font, amount of text, use of colour, addition of visuals. The children were then asked to create and upload a new slide containing an animal video (Task 5.4). A link to a website that contains free to use videos for commercial and personal use was provided. The task was scored based on whether they were able to: (1) create a new slide, (2) add an animal video, and (3) save and upload the file. The scoring was based on whether each aspect was correctly performed or not.

- *Task 5.5: You are also going to try and find an image to add to your presentation about climate change. You would like an image that contains polar bears and melting ice. Make sure that you are allowed to use the image freely (i.e. there is no copyright). Please open a new window, search the internet and find an image that fits the description above. Then upload the image.*

The final task involved selecting a copyright-free image containing a polar bear and melting ice. The scoring was based on whether a copyright-free image was uploaded or not.

4.3 Procedure used for conducting the initial version of the test

The first version of the performance test (as introduced in the prior section) was conducted in November 2020 in Estonia, Portugal, Belgium, and the Netherlands. Before the start of the test, informed consent was obtained from all children and their caregivers. The performance test started by asking demographic questions regarding the children's gender and age. The children were then presented with the skill items (yDSI). The completion of this part took around five minutes in all countries. Subsequently, the test continued with the assessment of digital skills through the tasks discussed in the previous section. The tasks were performed on a computer or laptop with internet access. Additionally, it was explained that a program for creating slides should be installed (e.g., PowerPoint). The test took approximately 50 to 60 minutes to complete. During task completion, the children themselves decided when they were finished or wanted to give up on a task.

Due to the COVID-19 pandemic, conducting performance tests at school was unfeasible in some countries. The performance tests were therefore held individually or in a classroom setting. In the individual setting, the child completed the test at home while being monitored by a researcher. The researcher used a programme for video conferencing that allowed screen sharing and recording. During the online session, the child was given a verbal instruction about the procedure. After this explanation, the child was asked to enable screen sharing and recording and open a Qualtrics page to start the test. The researcher and child stayed connected during the whole session. It was allowed to ask questions if instructions were unclear. No questions that could possibly influence the child's strategies to find a solution were answered. The researcher used a form to directly score several indicators of task performance. In the classroom setting, the child completed the test in a classroom supervised by a teacher and conducted by trained researchers. A classroom was prepared in which 15 to 20 children were able to perform the test at the same time. Before the children entered the classroom, the Qualtrics page was opened on the computer screen, and software to record a screen and create a slide was installed. Scoring was done afterwards based on video recordings of the task performance.

4.4 Evaluation and lessons learned

The results below discuss the considerations and lessons learned (with bullet points) from developing the first version of the performance test and conducting this test among children in four different European countries.

Designing a performance test

The first consideration was to decide on the type of performance test that would fit best with the goals and context. A performance test was designed in which children are required to perform real-life tasks. The test also aimed for a direct assessment of digital skills through performing tasks that represent a true situation in an open internet environment.

- Make the topics appropriate to the online experiences of children and replicate their lived experiences to motivate them to complete tasks.

Additionally, the topics needed to be suitable for children of a wide age range (12- to 17 years old) in four European countries. The topic *Netflix* (Tasks 1.1, 1.2, 1.3) is American oriented and unfortunately the findings from conducting the tasks revealed that although the streaming service is used in all countries that participated, the amount of available information differs significantly per

country making search skill comparisons difficult as the performance depended on the availability of the requested information.

- Choose universal themes (for example climate change or COVID-19) to make search task topics applicable cross-nationally and across age groups.

In real-life performance tests, actions are observed and scored while the subject is solving the tasks. The participant's performance in each task was assessed by the researchers involved, based on the task outcome and a coding scheme. A coding scheme was used to collect information about the search process (keywords, search attempts, evaluation of answer on another website), which is typically not collected when using (self-reported) survey instruments. As such, the results give insight into the specific skill problems experienced. The design of a coding scheme is important to generate comparable results but proved to be a difficult endeavour for a performance test of digital skills. Coding problems such as how to determine the quality of online search performance arose. To illustrate, a broad search query does not necessarily lead to an incorrect answer. The debate centred around whether it was possible to develop objective criteria (e.g., specific keywords and number of search attempts being used) for good or bad performance. In addition, the coding scheme has to be detailed. To illustrate, the correct answer to one of the questions was 'Black Mirror: Bandersnatch' or 'Bandersnatch'. However, some coders also scored the answer 'Black Mirror' as correct, which could be more explicitly stated as incorrect in the coding scheme. Developing a coding scheme also meant finding a balance between the complexity of skills indicators and the ease of use. The aim was to define objective criteria to learn more about the processes involved in solving the task in order to evaluate the performance. We decided to measure children's digital skills by scoring whether the task was completed correctly or incorrectly. The coding of additional skill indices was scored to provide an explanation when an answer could not be found. However, A detailed coding scheme is necessary to map the search process in an open internet environment. The skill-related actions are partly determined by what the search engine returns. This is especially important to standardise when performance tests are intended to be done on a larger scale as part of standardised skills testing.

- Reserve ample time to walk through the coding scheme with the team of researchers involved in this process to make sure everyone has the same understanding of the criteria.

Unlike a closed test environment, there is no technical expertise needed to develop a platform that simulates real-life ICT applications. Such platforms are dependent on current technological trends and developments and are better avoided.

- Avoid app- or platform-specific tasks in real-life performance tests.

Additionally, the skills related to specific apps or platforms may not always be transferable. For example, the settings for filtering search results for a desired time range (Task 1.2) differ per search engine. Furthermore, not every participant uses the same apps or platforms. The most popular or commonly used apps or platforms are also not the same for each country. So, a main advantage of avoiding app- or platform-specific tasks is that they are representative over time in multiple countries.

- Let participants choose the search engine of their preference to find the answer on a fact-based question.

Although our aim was to test for real-life and transferrable, platform-independent skills, such tasks proved to be difficult to design for relation and context-dependent communication and interaction and content creation and production skills. Tasks used for communication and interaction are relatively more specific to the situation in which they are applied. Context is needed to help

resolve ambiguities and to measure in consistent ways, especially when the performance test needs to be applied cross-nationally. For content creation skills, for instance, children had to use a specific programme such as PowerPoint to design an improved slide. The slide that needed improvement was prepared by the researchers. For communication and interaction skills, for instance, children had to read a mock-up of several chat conversations. The difficulty lies in how to make it as realistic as possible in an open internet environment, without programming a chatbot or a social media timeline.

- Involve children early in the process and take the children's level of understanding and experience as a starting point in the design process.

An example of this is that we, as researchers, designed the chat messages in Task 4. While children understood the purpose of the task, they pointed out that it is not how a conversation between peers usually goes in real-life. In general, tasks for communication or social skills often result in scenario-based questions as a form of interaction is required. When designing a performance test, building a balance in the level of real-life research design and control is difficult to establish. Tasks completed in an open internet environment are real-life but lack control of the changes in Internet resources and other confounding factors. Although the developed tasks attempt to replicate real-life scenarios, the validity depends on whether the tasks are realistic and well-designed by the researchers.

Implementing a performance test

The concept of digital skills is broad and, therefore, it is difficult to develop a test that covers multiple skills dimensions. Communication and interaction and content creation and production skills are, for instance, scarcely addressed in measurements. Because the administration of tasks takes time, it is not always feasible to measure all skills dimensions included in the construct of digital skills in one performance test. Additionally, performance testing is cognitively demanding. Attention may decrease rapidly when the tasks take too long to complete, especially when the participant group involves children. The complexity of the test and the time it takes to complete the test should therefore be carefully considered. Performance assessments with no time limits also bear the risk that some participants spend too much time on certain tasks, especially if they cannot find the correct solution. In our case, the performance test could not take longer than one school hour, which is usually less than one hour. This limits how extensively each digital skill can be measured.

- Present tasks in an interactive way, instead of using static screenshots. This can help mitigate the effects of increased cognitive demands. A more interactive way could for example be that children can watch words appear as they are being typed.

Before implementing the performance test, it is also important to hold an expert consultation followed by cognitive interviews with the participant group. For the current study, all partners involved in data collection were asked to perform all tasks. Remarkably, the performance of information navigation tasks – which we expected to be relatively easy to design – proved to be quite difficult to implement. The reason for this is that the solutions to the tasks needed to be available in the native language in all participating countries (Dutch, Estonian, and Portuguese). Also, the answer should not be too easily available, meaning the answer is not immediately visible in the search result list. Consequently, various rounds of adjustments were necessary to make sure information navigation skills could be measured cross-nationally.

Additionally, the partners involved were also responsible for the translations. Translating, in general, is a complicated task. The words used need to be as specific as possible, especially for younger children who might know fewer words. What makes it even more complex is that some instructions are automatically translated depending on the system being used.

Although expert reviews help to expose the main potential weaknesses regarding how to understand tasks and instructions, the researchers' expectations of digital skills are taken as a starting point. Cognitive interviews are necessary to gain indications regarding participants' reflection on their thought processes involved in solving the task. The findings of the cognitive interviews make it easier to anticipate how they react and therefore children's reasoning and examples are used to further improve the performance test.

- Use cognitive interviews (in addition to an expert round) to explore how children interpret the tasks.

- Perform cognitive interviews in all countries involved as they bring unique experiences and perspectives to consider.

From the cognitive interviews, it was learned that explicit instructions are critical for children. An example of this is that children were asked to close personal windows before screensharing. However, particularly in the individual setting, the researcher had to remind the child verbally to follow the instruction. Another example of this is that the instruction 'What would you do when you receive this message? Explain below why' turned out to be confusing. Clear task instructions provide guidance and diminish the cognitive load to process information.

- Split up two-pronged questions (for example by letting the child answer if one would send a picture or not and then asking to provide the explanation in a separate text box).

Analysing a performance test

The organisational and labour costs required for performance testing have limited the application of this method to measure digital skills. An issue with performance testing is that participation and scoring for a single participant is time and labour-intensive. Even if the performance tests are conducted in a classroom setting, the screen recordings need to be analysed afterwards. Consequently, real-life performance tests usually involve small samples because their intensive nature prohibit data collection on a large-scale. An option could be to integrate some extra questions in the performance test and let the participant do some of the coding. For instance, the child can list the exact terms used to find the answer for each search attempt. Although it saves effort and time for the researcher, it is even more demanding for the child to perform. Another disadvantage of an individual setting is that it is not possible to control if the child performs the test alone.

The coding of the aspects for the initial performance test also proved to be difficult. The real-life performance test was labour intensive in its implementation and scoring. In the coding scheme of the tasks related to social interaction and content production skills, the option 'other' was often selected. For instance, with the task around receiving an anonymous message (Task 3.1), the researcher had the following options to code the explanation why not to send a picture: (a) None given, (b) Do not send pictures to stranger, (c) Block sender, (d) Neglect sender, and (e) Other. An answer such as 'verify the message with your friend' was given which is not reflected in any of the pre-coded categories. The extensive test helps to figure out what the range of other options are. Although the test development included two test stages, the range of answers seems to suggest that more detailed information about the coding of the tasks could be provided. A reason for this is that communication and interaction and content creation tasks are more subjective when it comes to the performance evaluation. Children had to answer open-ended questions which adds depth to the test but also allows for wide-ranging responses. This triggers ideas and discussion about how to provide more elaborate answer options in the coding scheme.

- Include as much answer options in advance as possible, but at the same time leave one option open in the coding scheme to cover unexpected answers.

Please note that a drawback to this approach is that by providing more answer options, it is likely that children would not have thought of these options themselves. Nevertheless, using pre-coded categories appeared valuable when working with a cross-national team. Despite the use of a standardised coding scheme, the comparability may also be limited since multiple researchers and research assistants were involved in the coding process. More specifically, the task around finding and uploading a copyright-free image (Task 5.5) caused confusion. During the analysis it became clear that this task should be specified to make sure children use settings in the search engine to find a copyright-free image. Also, the focus of attention in the analysis should be concentrated on the skills action. Not being able to search for a copyright-free image does not mean that one cannot upload an image (even though the image is not copyright-free).

- Limit the dependence between skills actions as successful performance should not depend on how the participant performs the previous task.

- Restrict the numbers of coders per country to one or two and ensure all coders are instructed in a similar manner.

- Include a training when working with a team of researchers before the start of the performance test analysis to make sure everyone is on the same page.

4.5 Conclusions

From the results discussed in this section, we conclude that the developed performance test needed substantial adjustments before it could be used in different countries. Therefore, we decided to take the test as a starting point, but deleted and added tasks next so several rigorous changes to account for the issues discussed. The final instrument is introduced in the next section.

5 Performance test – Final version

5.1 Introduction

After careful consideration of the problems that arose from the initially developed performance test, and accounting for the lessons learned, we improved the performance test. The development of this new version was again an *iterative process*, with regular feedback provided by the research team and scholars from the six country partners (Estonia, Finland, Germany, Italy, Poland, and Portugal). After several feedback sessions, the test was piloted with two to three children in each country. The feedback from the children provided insights into the test comprehensibility and difficulty and whether the adjusted and new tasks were appropriate for children of different ages in different countries. The next section introduces the changes made to the initial test (based on lessons learned from this test, and from the cognitive interviews of the new test). Then, in section 5.3, the final performance test is provided. This is the test as it will be used in six large-scale studies (100+ children) in Estonia, Finland, Germany, Italy, Poland, and Portugal.

5.2 Development of the final version

Two more general changes that have been implemented in the final test:

- The final test is split in two modules to limit the cognitive load on children. The first module focussed on *information navigation and processing skills* and *content creation skills*, and the second module on *communication and interaction skills*. Module one is expected to take around 40 minutes to complete, and module two around 20 minutes.
- There is a more even distribution of tasks in terms of skills. In the initial test, relatively much time was spent on the information navigation and processing skills and on content creation skills. In the final test, each skill is expected to be tested in 20 minutes. The number of similar tasks is reduced, making more space available for skill elements that were not covered in the initial test.

Module 1: Information navigation and processing skills

The main changes to the tasks covering *information navigation and processing skills* are:

- The topics of the tasks have changed. Instead of *Netflix*, we decided to develop tasks around the *climate activist Greta Thunberg*. For the whole test, the topic of climate change was eventually chosen as this actual and very relevant issue is discussed at primary and secondary schools in all participating countries.
- Multiple choice options are provided for some questions, making cross-national coding comparisons easier. For example, in Task 2.2 children are asked to take a close look at the textual and visual information presented in three posts. The initial open question about the purpose of the posts was altered to providing choice options (advertisement, fake news, identity theft, news article, opinion piece, phishing scam, spam). Post 1 is an advertisement, Post 2 presents fake news, and Post 3 is a phishing scam.
- More details about the search process are acquired to make cross-national coding comparisons easier. In the final test, children are asked to list the search queries they used for each search attempt. This way, if the task is not completed successfully (the main outcome), indications for failure are also coded.
- Skill indicators are added to better capture yDSI skill items. For example, to check whether children know from what website they obtain information; in one task they are asked to indicate the website they used to find the answer.

- Answer categories for the task in which children have to account for a specific time range in their Google search (1.5 in the final test) are provided. They are first asked to list the number of search results, and then to choose between four options (I did not account for the time range, I entered the time range in the search bar, I used Google search tools, Other…) ('I used Google search tools' is coded as correct)
- Tasks related to objectivity and reliability are added, as in the original test this did not get enough attention:
    - Task 1.6 asks children to evaluate search results on objectivity and reliability. Rated successful if the top two websites are UN.org and Wikipedia.
    - Task 1.7 asks children to indicate what makes a website trustworthy. They have the following choices: (a) Advertisements are presented, (b) Contact information is available, (c) Content is well structured, (d) Date of information is published, (e) Short URL is used, (f) Author or publisher is visible, (g) Lock icon in address bar is displayed, (h) Colourful design is used. The number of correct answers are coded (b,d,f,g), minus the number of incorrect options.
    - Task 2.1 asks which of five websites is least likely to provide reliable information about climate change. Websites 4 and 5 are coded as correct.

Module 2: Communication and interaction skills

The main changes to the tasks to measure *communication and interaction skills* are:

PART 1 - Receiving and sharing info of others

- The two posts in the initial test with visible telephone number in one post and a bikini photo in the second, are changed. The final test contains four new posts. Children are asked to indicate which of the four posts is certainly not okay to share with others without asking for permission. Coded as correct is the selection of post 4, because the faces of two people are clearly visible. The task now fits the general module's storyline and is less prone to discussion.
- The task about a message from an unknown person in the initial test is changed because the open questions resulted in a too large variety of answers. Instead, in the storyline in the final test. the child is asked the two best steps to take when a discussion becomes nasty with sexist comments. Options provided are: (a) Ignore it, (b) Block the person, (c) Make sure her posts are private, (d) Report the content, (e) Tell a parent or teacher that this is going on, (f) Delete/cancel her account, (g) Respond to the person, and (h) Find posts from the person and comment nasty things in retaliation. Coded as correct are options b and e.

PART 2 - Interacting with others

- The task on how to contact friends in the initial test is extended. In the final test, the child is envisioned to have a discussion with different people (child – teacher and classmates, child – close friends, child – expert). The child is then asked what medium would best be used for this discussion (separately). Options are: (a) WhatsApp, (b) Instagram, (c) Facebook (messenger), (d) Zoom/Teams/ Google Meet etc., (e) Phone call, (f) Skype, (g) Facetime, (h) Email, (i) School platform, (j) Other… . Correct are child – teacher: d, f, i; child – close friends: anything but h; child-expert: e, h.
- A task about the platform Zoom is added as this seems very relevant in the COVID-19 era. The task evolves around the preferred Zoom settings when a teacher is speaking, both for the child itself and others in the Zoom session. Options for the first instance are (a) Mute myself, (b) Show speaker view, (c) Turn off camera, (d) Make chat box visible. Coded as correct when option a is chosen. For the second instance, options provided are (a) I would not make any changes, (b) Make sure that they have their camera on, (c) Make sure that if they have a picture of themselves, (d) Make sure that their face can be clearly seen, (e) Make sure they have their

microphone off, (f) Have their name displayed, (g) Use their phone rather than their laptop, (h) Have a funny virtual background. Coded are the total number of correct answers (b, d, e, f).

- A task on contacting an expert about COVID-19 via e-mail was added. The structure for the e-mail is provided by separating five parts with in each part several text-options: Introduction, (coded correct = Dear Sir, Madam), Thanks (coded correctly = Thank you for accepting my request to talk about the COVID-19 policy), Exchange details (coded correctly = I look forward to speaking to you soon. Perhaps we could communicate via email to set up a date and time for a meeting), Date and time (coded correctly = Could you please let me know your next availability? I am happy to meet online or in person, depending on your preferences), and Conclusion (coded correctly = Thank you in advance, and best wishes, [your name]).

PART 3 - Intimate conversations with friends

- The WhatsApp conversations in the initial test have changed. The topic now involves a school project as the attention should be on the way the children communicate, not about the content (the initial climate change topic was controversial). The messages in the conversation are numbered and are referred to in provided answer options. Chat 1 (Lucas and Thomas) is coded correctly when options 4 and 6 are selected; chat 2 (Charlotte and Sophie) when 'none of them' is selected; and chat 3 (Emma and James) when 'none of them' is selected. After chat 1, a follow-up question asked the child what to do if this kind of conversation happened in a group that the child belonged to. Correctly coded are 'Put a message in the chat asking Thomas to not say such things' and 'Tell a parent or teacher that this is going on'.

Module 1: Content creation and production skills

The main changes to the tasks to measure *content creation and production skills* are:

- The task to improve a slide in the initial test has changed. In the final test, Task 2.3, children are asked to create a slide about climate change themselves, accounting for specific requirements. Coded are using an image as a template for the slide (no/yes): change the colour of the image to black/white (filter) (no/yes), add a title and listing three important causes of climate change (no/yes), making sure the text is readable (bullet points) (no/yes), and saving and adding a video about pollution (no/yes).
- A time maximum to 10-15 minutes is set to Task 2.3 as in the initial test some children spent too much time when altering the slide.
- The task in the initial test about ways to share a slide with friends is removed as it has much overlap with tasks related to communication and interaction.
- The initial question about an image without copyright is separated from other tasks and provided as a single task in the final test. In the initial test, it proved difficult to disentangle the separate coding for different tasks.
- The task about going viral in the initial test is changed. In the final test this task better fits with the test's topic and flows from the storyline. Children are asked to share their creation with as many people as possible. Furthermore, instead of the initial open question format, several answer options are provided, and the two most likely options are asked for: (a) Picture, (b) Use hashtags (#), (c) Use capital letters, (d) Tag people, (e) Use a lot of colours, (f) Use emoticons. Correct when b and d are selected.

5.3 The final test

MODULE 1

Introduction

In what follows are a series of tasks that you are asked to complete.
Try to find the answers or solve the problem. If you can't figure it out, don't get stuck with the task but instead please move on to the next task.

In some tasks you are asked to do things by opening up a new window. After you have looked for the answer or tried to find the solution for the task, you should come back to this survey, give your answer and move on to the next task.

Please use only the computer you are on right now to find the answers and solutions and don't use your mobile or another device.

For each task, please read the instructions carefully.

Introduction Part 1: Climate Activist Greta Thunberg

Greta Thunberg Image from Wikimedia Commons

During the first tasks, you are doing some research on the background of a Swedish climate change activist, Greta Thunberg. She publicly challenges world leaders to take action on climate change.

PART 1. Climate Activist Greta Thunberg

Task 1.1
In 2020 an international documentary about Greta Thunberg was released. Open a new tab and use a search engine such as Google or BING to find the answer on the following question:

What is the name of the director of this documentary?
While searching for the answer, please list the terms that you use for each search attempt in the next question.

Please write your answer here:

Please list the exact terms that you used to find the answer for each search attempt:
note: if you have for example one attempt, only fill in the terms after "Search 1" below:

Task 1.2
Which website did you visit to answer the previous question about the documentary of Greta Thunberg?

To be clear, we do not mean the search engine (e.g. Google or Bing) that you used, but the web source of your answer.

Please select one answer
- I do not remember
- The answer was directly stated in the search result list
- Other:

Task 1.3
Greta Thunberg has won prizes for her climate activism. One of those prizes is the so-called 'Alternative Nobel Prize'.

Open a new tab and use a search engine such as Google or BING to find the answer to the following question:

With whom did she share the 'Alternative Nobel Prize' in 2019?
While searching for the answer, please list the terms that you use for each search attempt in the next question.

Please choose **all** that apply:
- Guo Jianmei
- Davi Kopenawa
- Aminatou Haidar
- All of the above

Please list the exact terms that you used to find the answer for each search attempt:
note: if you have for example one attempt, only fill in the terms after "Search 1" below:

Task 1.4
Open a new tab and use a search engine such as Google or BING to find the answer on the following question:

In what year was the first Alternative Nobel Prize awarded?
While searching for the answer, please list the terms that you use for each search attempt in the next question.

Year:

Please list the exact terms that you used to find the answer for each search attempt:
note: if you have for example one attempt, only fill in the terms after "Search 1" below:

Please close the windows or tabs with your search results before going to the next task.

Task 1.5
Greta Thunberg has received both support and criticism for the work she has been doing to warn people for climate change. Please search Google with "Greta Thunberg" as search query, and limit the results to sources published between 2019 and 2021.

How many search results did Google find?
Please write your answer here:

How did you account for the requested time range (2019-2021) in your Google search?
Please choose **all** that apply:

- I did not account for the time range
- I entered the time range in the search bar
- I used Google search tools
- Other:

Task 1.6
Take a look at the following Google search results.

Which of the following websites provide objective and reliable information about Greta Thunberg?
Please rank the websites from the most likely (top) to the least likely (bottom).

- The Tenacious Greta Thunberg | Your Dream Blog
  https://yourdream.liveyourdream.org › 2019/10
  21 Oct 2019 — Greta Thunberg is the 16-year-old from Sweden tackling climate change head-on. Get inspired by this example of girl power!

- Greta Thunberg – Wikipedia
  https://en.wikipedia.org › wiki › Greta_Thunberg
  Early life — Early life[change | change source]. Greta Thunberg was born on 3 January 2003, the daughter of ...

- Greta Thunberg - Recently I've seen many rumors... | Greta Thunberg's Facebook page
  https://www.facebook.com › posts
  2 feb. 2019 — Recently I've seen many rumors circulating about me and enormous amounts of hate. This is no surprise to me. I know that since most people ...

- Greta Thunberg tells world leaders 'you are failing us'
  https://www.un.org › desa › youth › news › 2019/09
  24 Sep 2019 — Greta Thunberg, Climate Activist ... Heads of State and Government, business leaders, and senior representatives from civil society from around ...

- Greta Thunberg is crossing the Atlantic on Vagabond. | Page 14 …
  https://forums.ybw.com › page-14
  ... try to understand what the terms "learning difficulty" and "Asperger syndrome" actually mean before equating them on a public forum). Last edited: 9 Feb 2020.

Task 1.7
The Internet has made it possible for anyone to publish webpages on climate change.

Which of the criteria below are more likely to indicate that a website is trustworthy?

You are allowed to give multiple answers.
Please choose **all** that apply:

- Advertisements are presented
- Contact information is available
- Content is well structured
- Date of information is published
- Short URL is used
- Author or publisher is visible
- Lock icon in address bar is displayed
- Colourful design is used

PART 2. Presentation about Climate Change

Image by Alexander van Deursen (Abobe Stock)

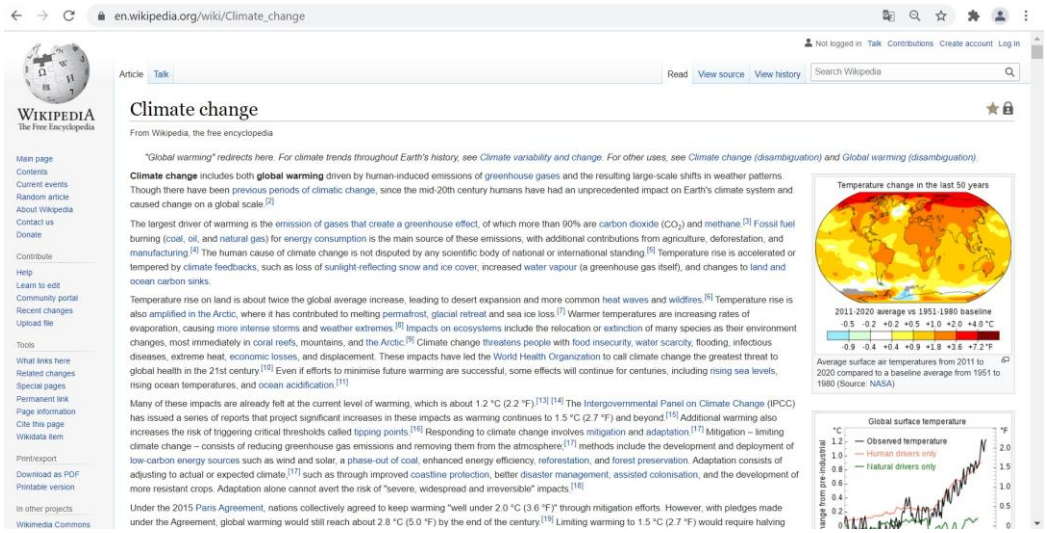
In the next tasks, you are searching for information on climate change for a presentation you and your team mates have to make for a school project.

Task 2.1
You decide to search for information on climate change. You come across the websites below.

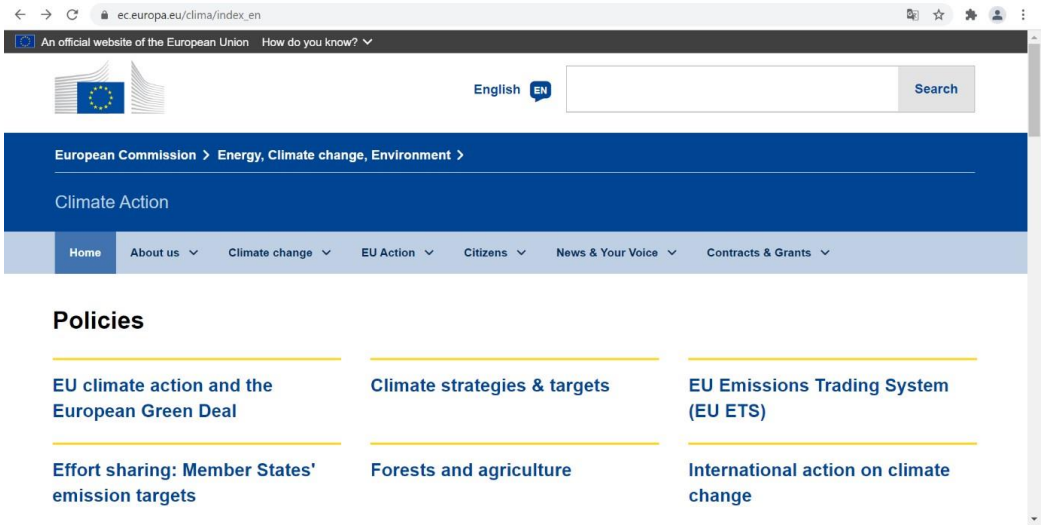
Which of the following five websites is least likely to provide reliable information about climate change?

Please select one website.

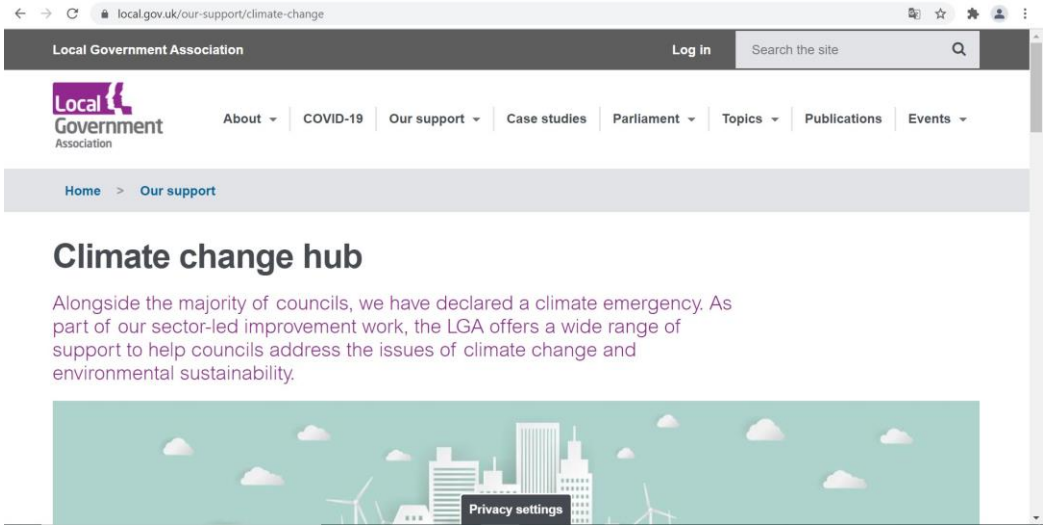
- Website 1



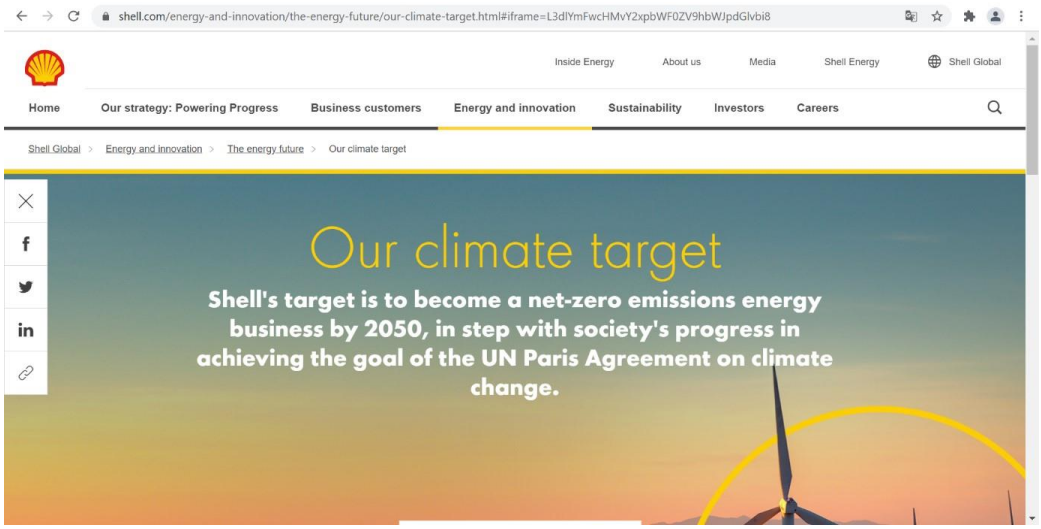
- Website 2



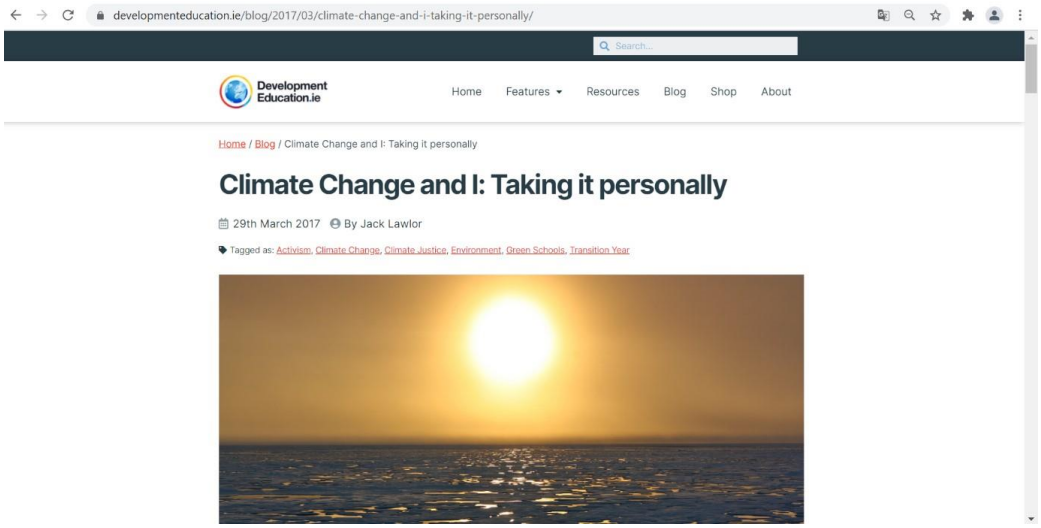
- Website 3

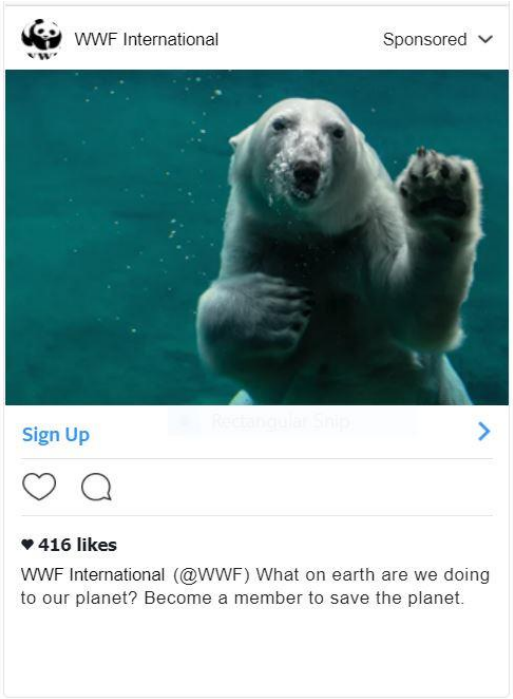


- Website 4



- Website 5



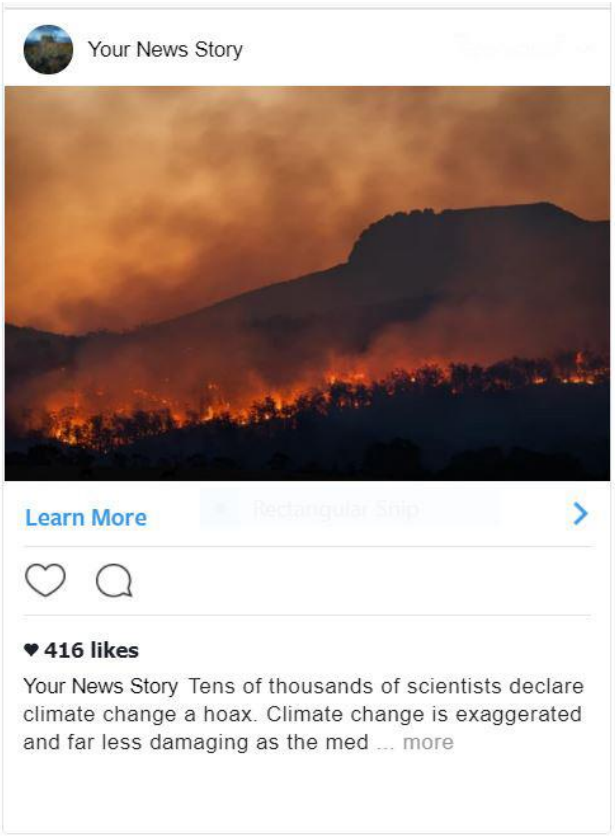


Task 2.2
Below and on the next pages follow three posts. Please read them carefully and tell us what type of post you think it is.

Post 1:
Can you tell what type of post it is?
Please provide one answer.

- Advertisement
- Fake news
- Identity theft
- News article
- Opinion piece
- Phishing scam
- Spam

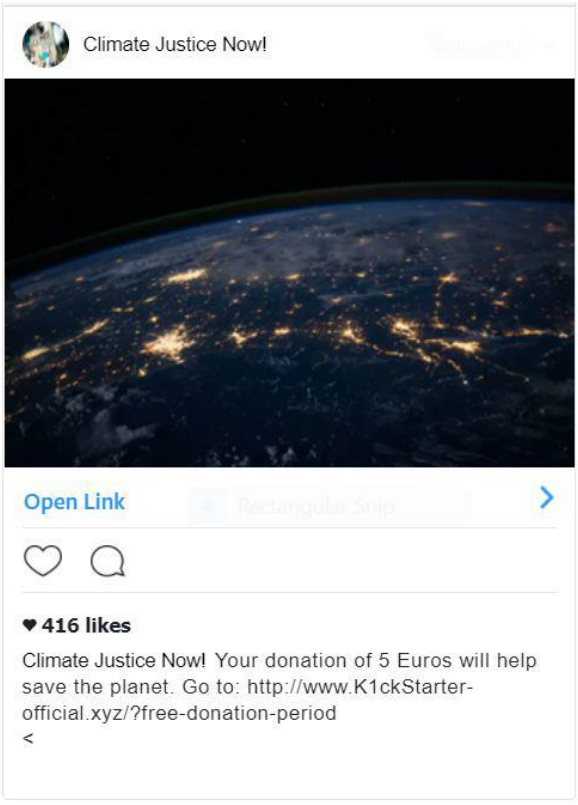
Post 2:



Can you tell what type of post it is?
Please provide one answer.

- Advertisement
- Fake news
- Identity theft
- News article
- Opinion piece
- Phishing scam
- Spam

Post 3:



Can you tell what type of post it is?
Please provide one answer.

- Advertisement
- Fake news
- Identity theft
- News article
- Opinion piece
- Phishing scam
- Spam

Task 2.3
For your group presentation, you have been asked to create a slide (for example in PowerPoint or Google Slides) on the causes of climate change. Try to complete the following to-do list.

If you are not sure on how to do something, you can go to the Internet for information.
1. Use the following image as a template for your slide: template
2. Change the colour of the image to black/white (filter).
3. Add a title and list three important causes of climate change on a slide. Make sure that the text is readable (bullet points).
4. Save this video about pollution and add it in **video format** to your slide.
5. When ready, please save your presentation and upload it below.

Note: Please spend a maximum of 10-15 minutes on this task

Task 2.4
One of your team members has difficulties with finding a copy-right free image of an ice bear. He asks you to help him out. Try to find an image to add to your group presentation. Make sure that you are allowed to use the image freely (i.e. there is no copyright).

Please go to the Internet to find an image that fits the description above.
You can upload the image here:

Task 2.5
Your school thinks your presentation was pretty awesome, and they want to share it with the wider world. They want to make sure that as many people as possible would see it.

How likely is it that one of the following things will increase its spread?

Choose the **two** most likely options.
- Use a picture
- Use hashtags (#)
- Use capital letters
- Tag people
- Use a lot of colours
- Use emoticons

The end - Thanks for participating!

Thank you so much for taking the time to participate. We are very interested in your opinion about the questions you answered and the tasks you completed. Did you find them difficult? Were they easy to do? Were they fun?

In case you would like to tell us about them, please do in the box below.
Please write your answer here:

MODULE 2

In what follows are a series of tasks that you are asked to complete.

Try to find the answers or solve the problem. If you can't figure it out, don't get stuck with the task but instead please move on to the next task.

Please use only the computer you are on right now to find the answers and solutions and don't use your mobile or another device.

For each task, please read the instructions carefully.

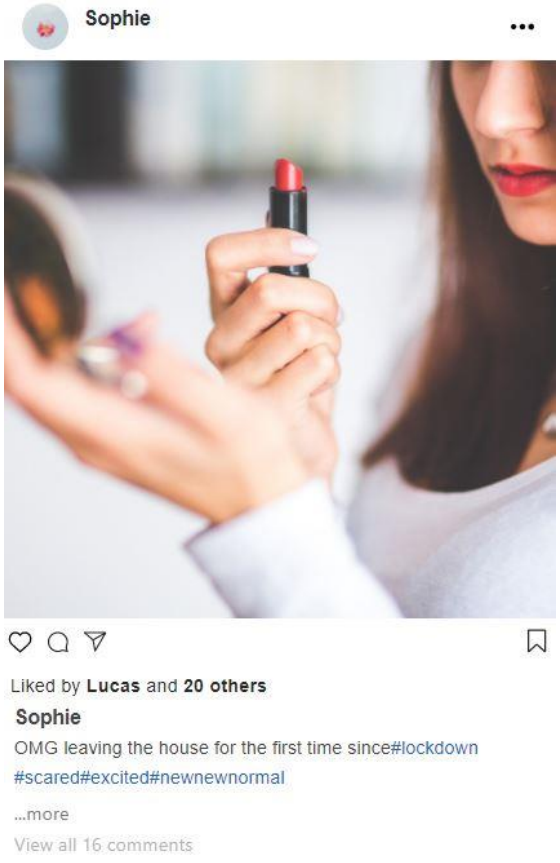
PART 1. Receiving and sharing info of others

Task 1.1

Sophie is the sister of one of your friends and a contact you follow on social media. She is not super close to you but you know her family. Please look at the following four posts of Sophie:

Post 1:

Post 2:



Post 3:

Post 4:

Of Sophie's posts, which one is certainly NOT okay for me to share with others without asking her?

- Post 1
- Post 2
- Post 3
- Post 4

Task 1.2
After Sophie posted the message about climate change (post 3 in task 1) someone started sending her nasty comments about how she was an idiot to believe that climate change is real. At a certain point this turns quite nasty with sexist comments about how all women are stupid and only good for one thing.

What do you think are the best two recommendations to Sophie?
Please choose **all** that apply:

- Ignore it
- Block the person
- Make sure her posts are private
- Report the content
- Tell a parent or teacher that this is going on
- Delete/cancel her account
- Respond to the person
- Find posts from the person and comment nasty things in retaliation

---

PART 2 - Interacting with others

Task 2.1a
You have been asked by your teacher to find out more about COVID-19 policies. You are specifically asked to have a discussion with the teacher and your classmates, have a discussion with some of your close friends, and contact an expert.

Which of the means of communication below would you use to have a discussion with the teacher and your classmates?
Please choose **all** that apply:

- WhatsApp
- Instagram
- Facebook (messenger)
- Zoom/Teams/Google Meet etc.
- Phone call
- Skype
- Facetime
- Email
- School platform
- Other:

Task 2.1b
Which of the means of communication below would you use to have a discussion with some of your close friends?
Please choose **all** that apply:

- WhatsApp
- Instagram
- Facebook (messenger)
- Zoom/Teams/Google Meet etc.
- Phone call
- Skype
- Facetime
- Email
- School platform
- Other:

Task 2.1c
Which of the means of communication below would you use to contact an expert?
Please choose **all** that apply:

- WhatsApp
- Instagram
- Facebook (messenger)

- Zoom/Teams/Google Meet etc.
- Phone call
- Skype
- Facetime
- Email
- School platform
- Other:

Task 2.2a

You decide to have a discussion with your classmates and teacher on Zoom. Below is an example of Zoom.

What settings would you use when the teacher (bottom left corner) is speaking?

Please choose **all** that apply:

- Mute myself
- Show speaker view
- Turn off camera
- Make chat box visible

Task 2.2b

What about the others on the chat, do you think that it would be good if they would change something about their settings?

Please choose **all** that apply:

- I would not make any changes
- Make sure that they have their camera on
- Make sure that if they have a picture of themselves
- Make sure that their whole face can be seen
- Make sure they have their microphone off
- Have their name displayed
- Use their phone rather than their laptop
- Have a funny virtual background

Task 2.3
Your teacher asked you to find out more about COVID-19 policies. Therefore, you would like to contact an expert on this. When contacting the expert, which of the following sentences would you include in an e-mail after he/she accepted your invitation?

Introduction:
Please choose **all** that apply:

- Dear Sir, Madam,
- Dear Mr/Ms Lucas,
- Hi Sam,
- Hey,

Thanks:
Please choose **all** that apply:

- Thank you for accepting my request to talk about the COVID-19 policy.
- I am really happy that you want to talk to me
- It is absolutely FANTASTIC that you have agreed to give me some of your time!!
- I am writing to set up this meeting

Exchange details:
Please choose **all** that apply:

- If you want to talk further that would be great – here is my phone number +44 7788990022 (assume that this is your phone number)
- If you want to talk further, we could do a video call – here is a link
- REALLY looking forward to our conversation! Let's meet up
- I look forward to speaking to you soon. Perhaps we could communicate via email to set up a date and time for a meeting.

Date and time:
Please choose **all** that apply:

- If you would prefer to, we can meet at my home/in a café around the corner
- We could meet on Monday after I have come back from class
- How about we facetime one of these coming days? ????
- Could you please let me know your next availability? I am happy to meet online or in person, depending on your preferences

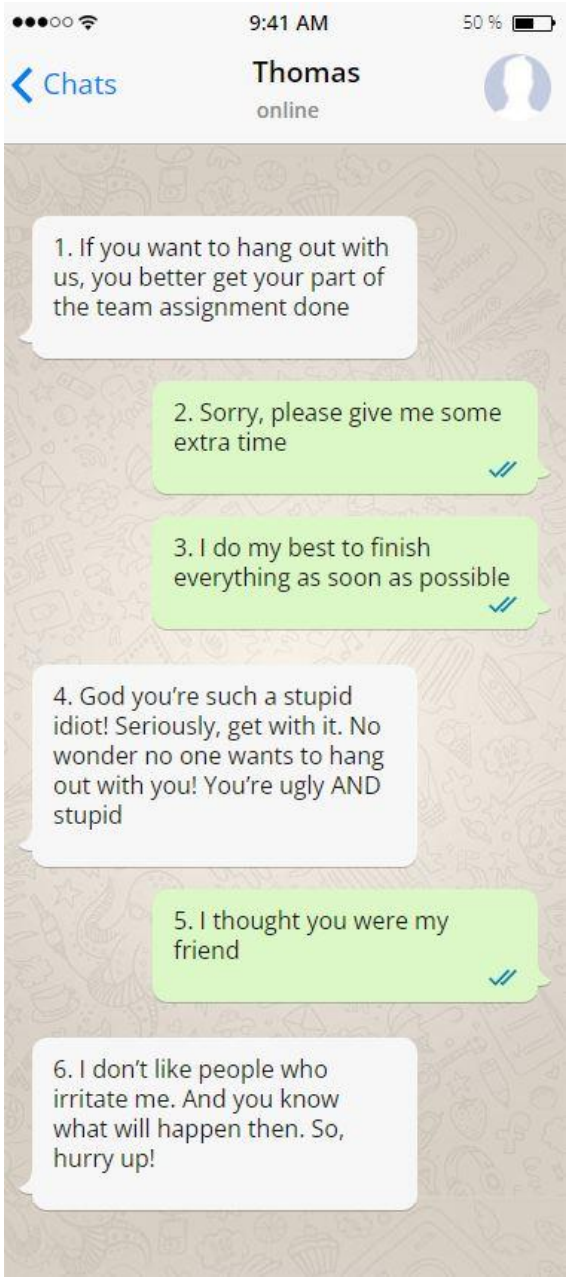
Conclusion:
Please choose **all** that apply:

- Thank you in advance, and best wishes, [your name]
- Cheers, [your name]
- Bye 👋

PART 3 - Intimate conversations with friends

Task 3.1a
Below are parts of chats between classmates on Lucas' phone.

Chat 1. Lucas and Thomas:



Do you think any of the six messages (see numbers in chat) are problematic?
Please choose **all** that apply:

- None of the messages
- Message 1
- Message 2
- Message 3
- Message 4
- Message 5
- Message 6

Task 3.1b

Imagine Thomas is one of your best friends.

Which of the following would you do if this kind of conversation happened in a group that you belonged to?

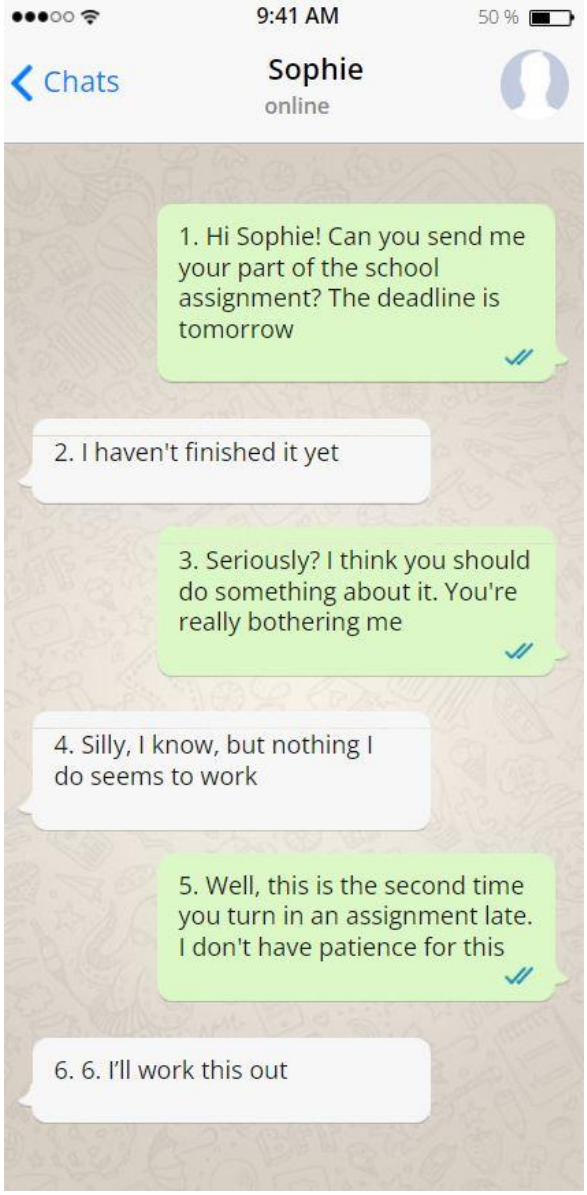
Please choose **all** that apply:

- Ignore it
- Throw your friend Thomas out of the group
- Put a message in the chat asking Thomas not to say such things
- Tell Lucas that this is not okay, that you support him
- Tell a parent or teacher that this is going on
- Support Thomas because he is one of your best friends
- Take a screenshot and share it in other group chats
- Respond in the group by publicly shaming Thomas for his behaviour

---

Task 3.1c

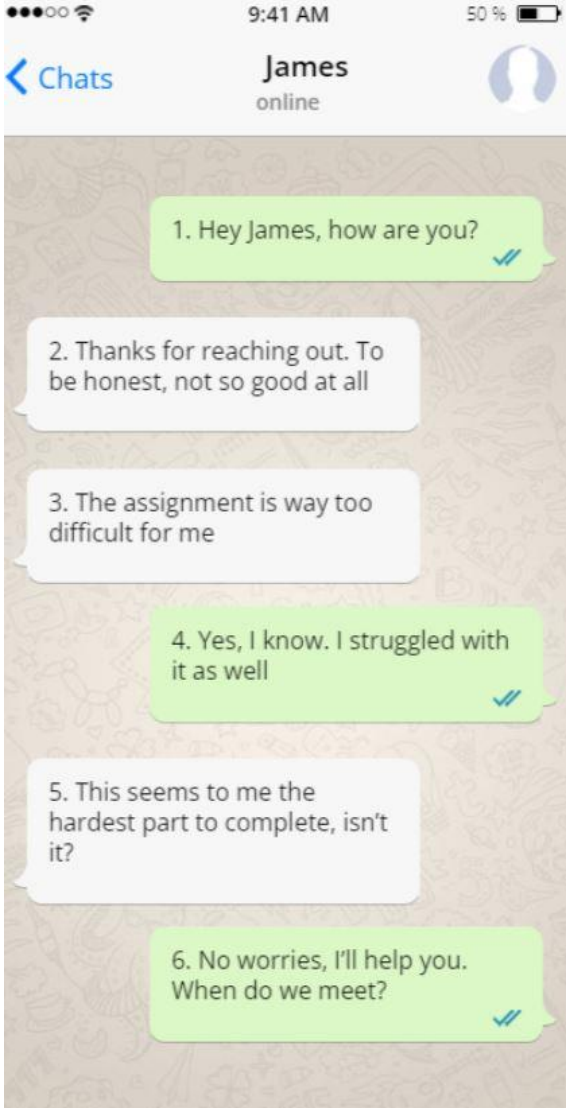
Chat 2. Please read the following chat conversation between Charlotte and Sophie:



Do you think any of the six messages (see numbers in chat) are problematic?
Please choose **all** that apply:

- None of them
- Message 1
- Message 2
- Message 3
- Message 4
- Message 5
- Message 6

Task 3.1d
Chat 3. Please read the following chat conversation between Emma and James:



Do you think any of the six messages (see numbers in chat) are problematic?
Please choose **all** that apply:

- None of them
- Message 1
- Message 2
- Message 3
- Message 4
- Message 5
- Message 6

The end - Thanks for participating!

Thank you so much for taking the time to participate. We are very interested in your opinion about the questions you answered and the tasks you completed. Did you find them difficult? Were they easy to do? Were they fun?

If there is anything that you would like to tell us about them, please write it down in the box below.

Acknowledgements
The authors thank the country partners for their suggestions for improvement during test development and for conducting the fieldwork. A special thanks to Prof. Dr. Natalia Waechter who helped us to guide the data collection process. Furthermore, we thank the reviewers for reading and useful suggestions that helped improve and clarify this report.

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