



The youth Digital Skills Performance Test Results

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

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The youth Digital Skills Performance Test Results

*Report on the results of real-life information navigation and processing,
communication and interaction, and content creation skills tasks*

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Executive summary

This report discusses the results of performance testing to measure digital skill levels among children in six European countries (Estonia, Finland, Germany, Italy, Poland, and Portugal). Key of performance testing is that participants use the Internet to demonstrate skills. In the present study, children between the ages of 13 to 18 performed real-life tasks to measure their digital skills. The tasks referred to the following three dimensions: (1) information navigation and processing, (2) communication and interaction, and (3) content creation and production skills. Sub-components for the digital skill tasks were derived from ‘The youth Digital Skills Indicator’ (yDSI) (Helsper et al., 2021).

As performance testing is a time- and labour-intensive process, the tests were divided in two modules. In most countries, the modules were performed on the same day in the Spring of 2022. All performance tests were conducted in class at school. In total, 772 children performed module 1 and 705 children module 2 (aiming at minimum 100 participants per country). Each country strived for a balance in gender and in lower and higher SES schools. The primary objective of performance testing is not to obtain a representative sample but to obtain a reliable and valid measurement of digital skills.

This report shows the percentages of children who correctly performed each task and the overall score for the three digital skills. Moreover, attention is paid to country level comparisons and differences between children (e.g., gender, age, and support from family and friends). The results of information navigation and processing skills demonstrate that children experience most difficulties with performing tasks focussed on evaluating information (e.g., selecting the most reliable website, naming the intention of a post). The task performance of communication and interaction skills furthermore demonstrates that what is appropriate and courteous online behaviour is not self-evident for children. With regards to content creation and production skills, many children succeed in uploading a copy-right free image but only a small minority designed a presentation slide according to the pre-established guidelines. Overall, the results raise doubts whether children have sufficient digital skill levels. Factors that often contribute to digital skill levels in large-scale survey research, seem less relevant in performance tests.



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 16 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

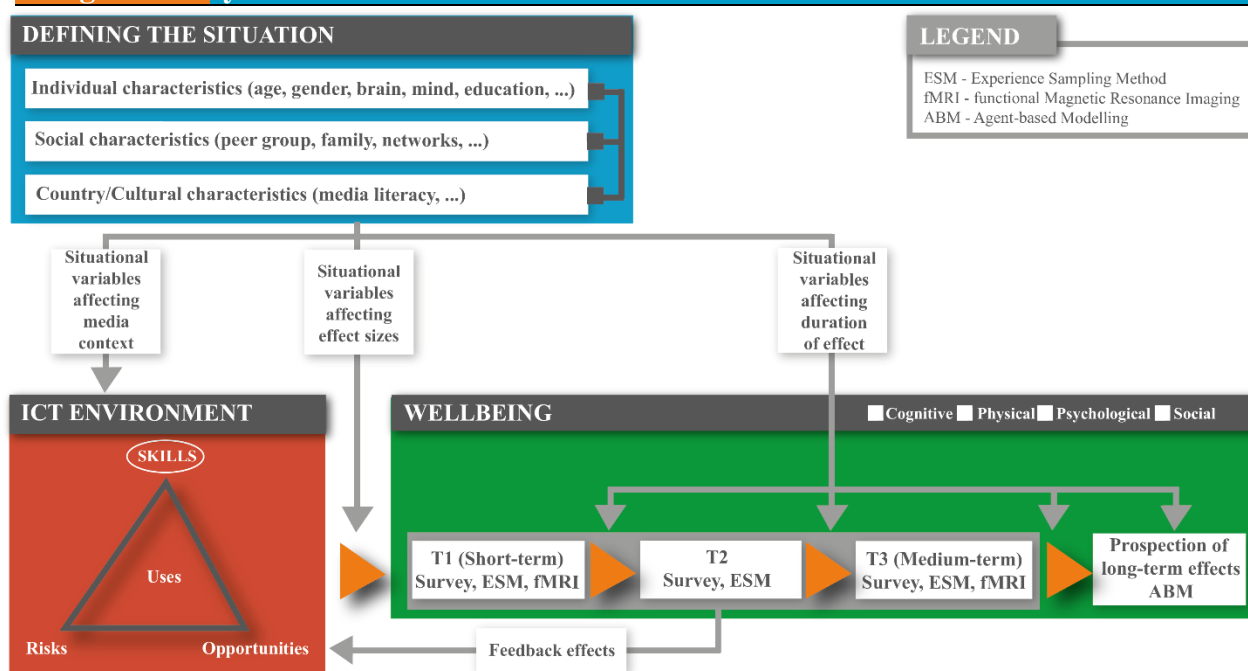
1. To acquire extensive knowledge and better measurement of digital skills.
2. To develop and test an innovative, evidence-based explanatory and foresight model predicting the complex impacts of ICT use and digital skills on children's cognitive, physical, psychological and social wellbeing.
3. To explain 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 objectives 1 and 4 by reporting on the results of digital skills performance tests conducted among children in six countries. In the tests, children had to complete *actual tasks* on the Internet, directly measuring digital skills and providing more in-depth information than survey measures do.

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



Figure 1. ySKILLS CONCEPTUAL MODEL



This report focuses on the bottom left element of the ySKILLS project – the **measurement of digital skills** as part of young people’s ICT environment. More specifically, it concerns performance tests among subsamples conducted after the second wave of data collection.

1.2 This report

This report describes the results of task-based measurements (performance tests) for a range of digital skills amongst young people. This measurement is the most externally valid way to measure digital skills as it provides participants the opportunity to demonstrate their skills (Aesaert & van Braak, 2015; van Deursen, van Dijk, & Peters, 2011). Performance tests are generally made up of tasks that require participants to perform an activity or construct a response (Claro et al., 2012). 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). In a prior report, the authors reflected on performance testing as a methodology to measure a broad range of digital skills in different countries among children (Van Laar et al., 2022). The aim was to provide a comprehensive overview of the methodological issues that should be considered. The design of the performance test was discussed considering the findings of a test that put particular emphasis on the development of cross-nationally applicable tasks. The current report uses this design to answer the following question:

What is the level of digital skills (referring to information navigation and processing, communication and interaction, and content creation and production) when measured through realistic tasks in different countries?

The performance tests were conducted in six European countries: Estonia, Finland, Germany, Italy, Poland, and Portugal. The next chapter looks at the conceptualisation of digital skills that underpins the performance test instrument followed by the sample and data collection procedure. After the methodological part, an overview of the levels of information navigation and processing skills is provided (Chapter 3). This is followed by an exploration of communication and interaction skills (Chapter 4), and content creation and production skills (Chapter 5). When discussing the skill levels, attention is paid to country level comparisons and differences between children with different gender



and ages, and with different levels of online activities undertaken, and friend and family support structures. This report ends with a reflection on the overall scores for each of the three skill types considered in the performance tests (Chapter 6).



2 Method: Conceptualisation of Digital Skills and Performance Test Instrument

2.1 Digital skills

Three dimensions that constitute digital skills are measured in the test:

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

Sub-components for each dimension of digital skills are conceptualised from 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 by 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 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). Subcomponents include affordances (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, subcomponents can be further identified in affordances (i.e., using multimodality), quality (reaching others, attracting attention), and ownership (persuading others, protecting rights).

2.2 Instrument

The measurement of digital skills in this report is based on performance tests that evaluate the ability to use the Internet in actual practice. The development of the test is thoroughly explained in “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” (Van Laar et al., 2022) (See Appendix A for the test). The development was an *iterative process*, including pilot studies, cognitive interviews with children, and regular feedback provided by the research team and scholars from six country partners (Estonia, Finland, Germany, Italy, Poland, and Portugal). The performance tests were split into two modules to limit the cognitive load on children. The first module focussed on information navigation and processing skills and content creation and production skills, and the second module on communication and interaction skills.

The performance test measures the ability to actually use the Internet and demonstrate skills in practice. This type of measurement provides a very realistic view of people’s digital skills, but is also a highly labour-intensive process. The procedures followed are described below and to some extent correspond with experimental settings (controlled environment, presence of a test-leader, applied quota samples). Due to the labour-intense nature of the process, conducting these steps with a representative sample of different child populations is not possible. This is, however, less relevant in this case, since obtaining a reliable and valid measurement of digital skills of the individual is the primary objective.

2.3 Samples

Table 2.1 shows the sample characteristics for module 1 and Table 2.2 for module 2. In total, 772 children completed module 1, and 705 module 2. Both modules show an almost equal division in gender. The majority of participating children were aged between 15 and 16 years. For module 1, the



sample size ranged from N=100 in Finland to N=193 in Germany. For module 2, the sample size ranged from N=82 in Poland and N=176 in Germany.

A notable number of entries were missing, especially in Finland and Poland. The performance tests were conducted among a subsample of children who also took part in a longitudinal survey. The linkage between performance test and survey depended on ID codes, some of which did not match between both datasets (for example in Poland IDs were created by the children themselves, which might explain the mismatch).

Table 2.1

Sample characteristics module 1

	Estonia		Finland		Germany		Italy		Poland		Portugal		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Gender														
Boy	48	46.2	23	23.0	90	46.6	63	51.6	32	25.6	42	32.8	298	38.6
Girl	43	41.3	33	33.0	82	42.5	41	33.6	37	29.6	69	53.9	305	39.5
Other	2	1.9	0	0.0	5	89.1	2	1.6	4	3.2	0	0.0	13	1.9
Missing	11	10.6	44	44.0	16	8.3	16	13.1	52	41.6	17	13.3	156	20.2
Age														
13	0	0.0	0	0.0	1	0.5	1	0.8	37	29.6	0	0.0	39	5.1
14	17	16.3	0	0.0	1	0.5	17	13.9	16	12.8	31	24.2	82	10.6
15	22	21.2	56	56.0	86	44.6	25	20.5	18	14.4	47	36.7	254	32.9
16	22	21.2	0	0	69	35.8	40	32.8	0	0.0	31	24.2	162	21.0
17	26	25.0	0	0	19	9.8	21	17.2	2	1.6	1	0.8	69	8.9
18	6	5.8	0	0	0	0.0	2	1.6	0	0	1	0.8	9	1.2
Missing	11	10.6	44	44.0	17	8.8	16	13.1	52	41.6	17	13.3	157	20.3
Total (N)	104		100		193		122		125		128		772	

Table 2.2

Sample characteristics module 2

	Estonia		Finland		Germany		Italy		Poland		Portugal		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Gender														
Boy	47	4.65	23	23.2	87	49.4	63	51.6	28	34.1	41	32.8	289	41.0
Girl	42	41.6	32	32.3	70	39.8	41	33.6	25	30.5	67	53.6	277	39.3
Other	2	2.0	0	0.0	5	2.8	2	1.6	2	2.4	0	0.0	11	1.6
Missing	10	9.9	44	44.4	14	8.0	16	13.1	27	32.9	17	13.6	128	18.2
Age														
13	0	0.0	0	0.0	1	0.6	1	0.8	32	39.0	0	0.0	34	4.8
14	17	16.8	0	0.0	1	0.6	17	13.9	11	13.4	31	24.8	77	10.9
15	22	21.8	55	55.0	80	45.5	25	20.5	10	12.2	45	36.0	237	33.6
16	21	20.8	0	0.0	62	35.2	40	32.8	0	0.0	30	24.0	153	21.7
17	25	24.8	0	0.0	17	9.7	21	17.2	2	2.4	1	0.8	66	9.4
18	6	5.9	0	0.0	0	0.0	2	1.6	0	0.0	1	0.8	9	1.3
Missing	10	9.9	44	44.0	15	8.5	16	13.1	27	32.9	17	13.6	129	18.3
Total (N)	101		99		176		122		82		125		705	

2.4 Data collection and procedure

The data collection took mostly place in the Spring of 2022. In Finland the data collection took longer due to delays in obtaining parental consent responses. All performance tests were conducted in a classroom setting within schools, as opposed to being conducted at home. This approach controls for quality of the Internet connection and hardware/software and ensures that the setting is equally familiar for all.



Children were given the test as presented in Appendix A. Children themselves decided when they were finished or wanted to give up on an assignment. No encouragements were given because the pressure to succeed is already higher in a classroom/laboratory setting. If the correct answer was not found, the task was rated as not completed. The test-leader refrained from influencing the subjects' strategies. During the task completion, subjects used a keyboard, a mouse, and a monitor. The computer was programmed with the most popular Internet browsers and software to create slides (Microsoft PowerPoint and Google Slides). This allowed subjects to replicate their regular Internet use. LimeSurvey was used to conduct the performance tests, except for the data collection in Finland where the platform ViLLE was used as LimeSurvey was not permitted because of ethical issues.

The number of schools involved ranged from two to five (see Table 2.3). Each country strived for a balance in lower and higher SES schools. There was no difference in SES for two secondary schools in Estonia and one elementary school in Finland. All performance tests were conducted in class and the number of classes ranged from four to eleven. Except for one school in Poland, both modules 1 and 2 were performed on the same day with a break in between. In the exception, the second module was conducted one week after the first module.

Table 2.3
School characteristics

	Estonia	Finland	Germany	Italy	Poland	Portugal
# of schools	2	2	5	2	5	3
SES schools						
High	0	0	3	1	1	2
Medium	0	0	0	0	2	1
Low	0	1	2	1	2	0
Other	2	1	0	0	0	0
# of classes	8	11	10	5	7	9
Both modules performed in one day	Yes	Yes	Yes	Yes	Yes: 4/5 schools	Yes
Data collection period	April-May '22	June '22, January'23	March-July '22	April '22	May-June '22	April-May '22



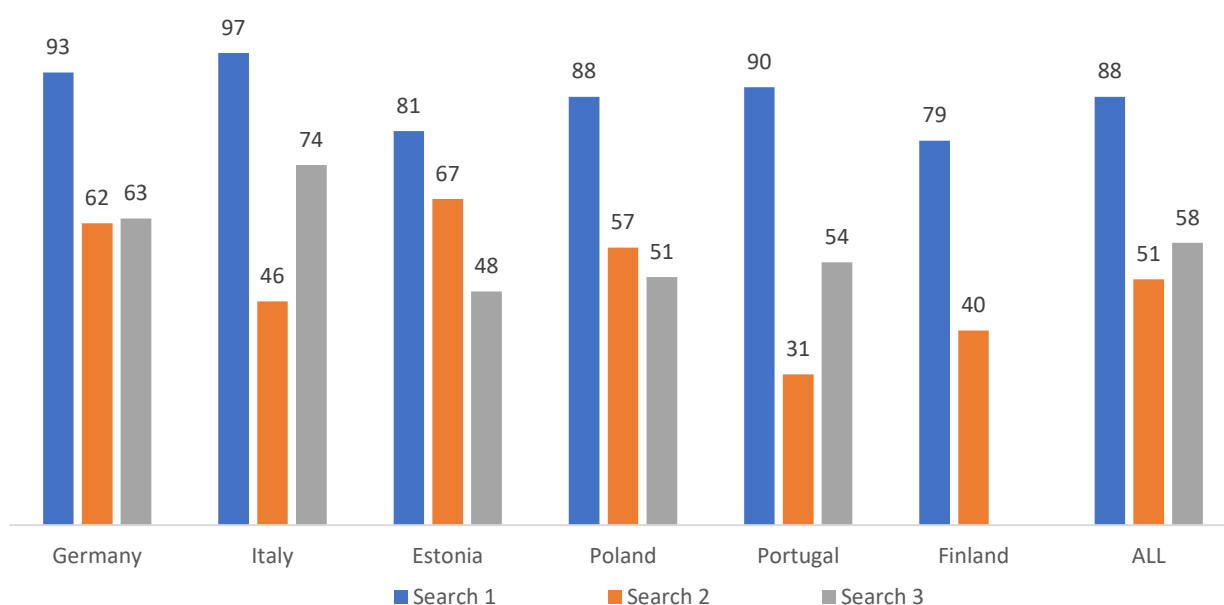
3 Level of information navigation and processing skills

3.1 Test results and country level comparisons

3.1.1 Searching and selecting information

To test the level of information navigating and processing skills, the performance test contained three tasks in which children were asked to search for fact-based information. All search tasks had one correct answer and tested the skills to find and select digital sources of information. The first search task (1.1) asked children to find the name of the director of the 2020 international documentary about Greta Thunberg (correct answer: Nathan Grossman), the second search task (1.3) asked with whom Greta shared the ‘Alternative Nobel Prize’ in 2019 (correct multiple choice answer: D: Guo Jianmei, Davi Kopenawa, and Aminatou Haidar), and the third search task (1.4) asked in what year the first Alternative Nobel Prize was awarded (correct answer: 1980). Figure 3.1 displays the percentage of children who successfully completed the different search tasks.

Fig. 3.1 Successfully completed search tasks (%)
(countries ordered by average completion rate of three tasks: high - low)



Note: There is no data for the 3rd search task in Finland.

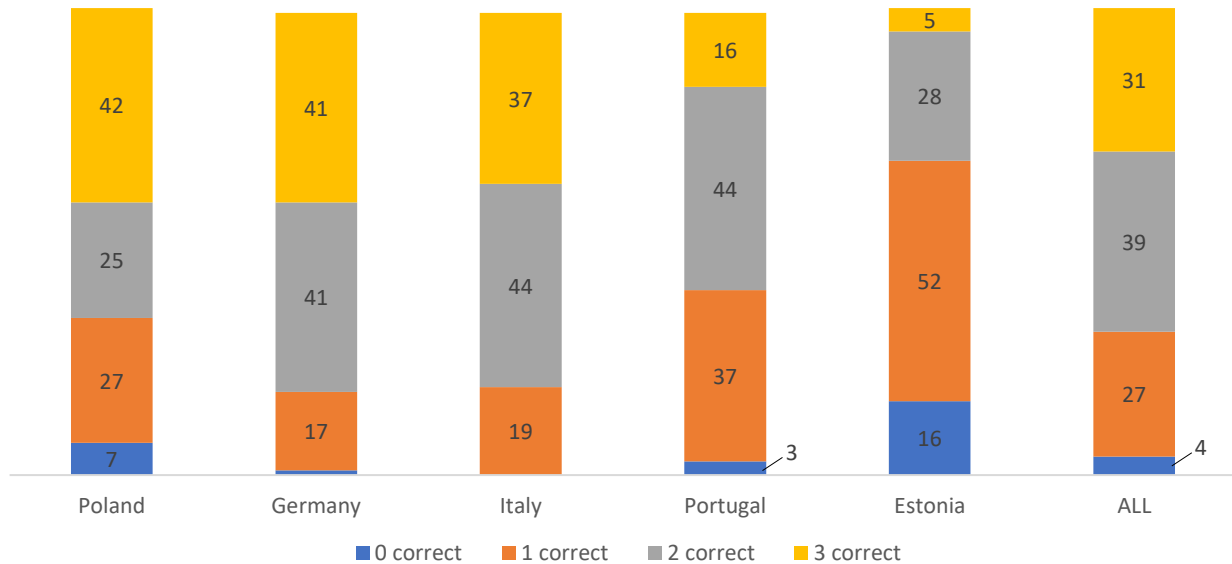
Across all countries, 88% of the children completed the first search tasks, 51% the second, and 58% the third (note that differences might be affected by the availability of information in the different languages, although in the development of the test it was thoroughly assessed whether the requested information was available). Search 2 turned out to be the most difficult for children, while this was the only multiple-choice task. Searches 2 and 3 were clearly performed worse than search 1. A possible explanation might be that children had to visit a website to find the answer. With the correct keywords, the answer on search 1 were immediately visible in the Google result page, which was not the case for searches 2 and 3. When examining country-specific results, German children exhibited the highest average rate of successful completion, followed by Italian and Estonian children.

Figure 3.2 illustrates the percentages of children who successfully completed 0, 1, 2, or 3 search tasks (Finland is omitted in this figure due to the absence of the third search task there). This figure shows that across five countries, 31% of the children successfully completed all three tasks, 39% two tasks, and 27% one task. Furthermore, 4% failed on all tasks. Figure 3.2 shows substantial differences



between the countries. While in Poland the percentage of children who successfully completed all tasks is relatively high, there is still 7% who failed all tasks. In Estonia, the percentage of children who successfully completed all tasks is low (only 5%) and the percentage of children who failed all tasks is relatively high (i.e., 16%).

Fig. 3.2 Number of search tasks completed successfully (%)
(countries ordered by 3 correct: high - low)



The children were also tested on their skills to account for a specific time range when searching (task 1.5). They were asked to search Google with the query ‘Greta Thunberg’ and limit the results to sources published between 2019 and 2021. After noting how many results appeared, the children were asked how they accounted for the requested time range. They had three multiple-choice options: not accounting for the time range, adding the time range to the search query in the search bar, or using Google search tools (see Figure 3.3 for the percentages of children for each option).

Fig. 3.3 Limiting search results by accounting for a time range (%)
(countries ordered by Google search tools: high - low)

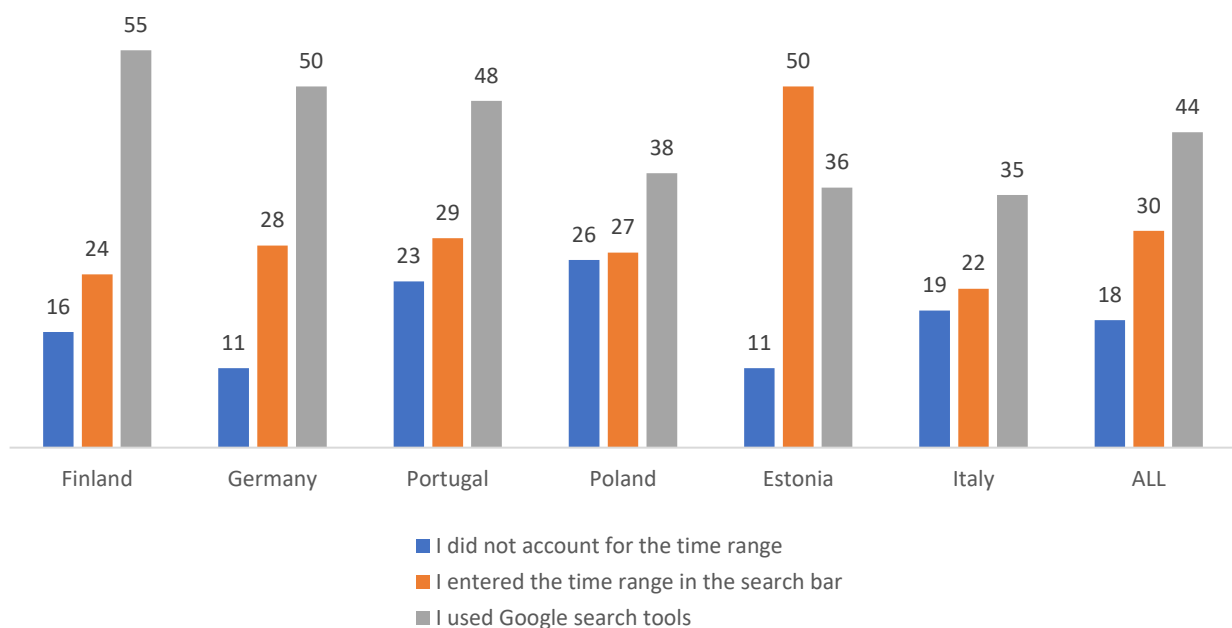
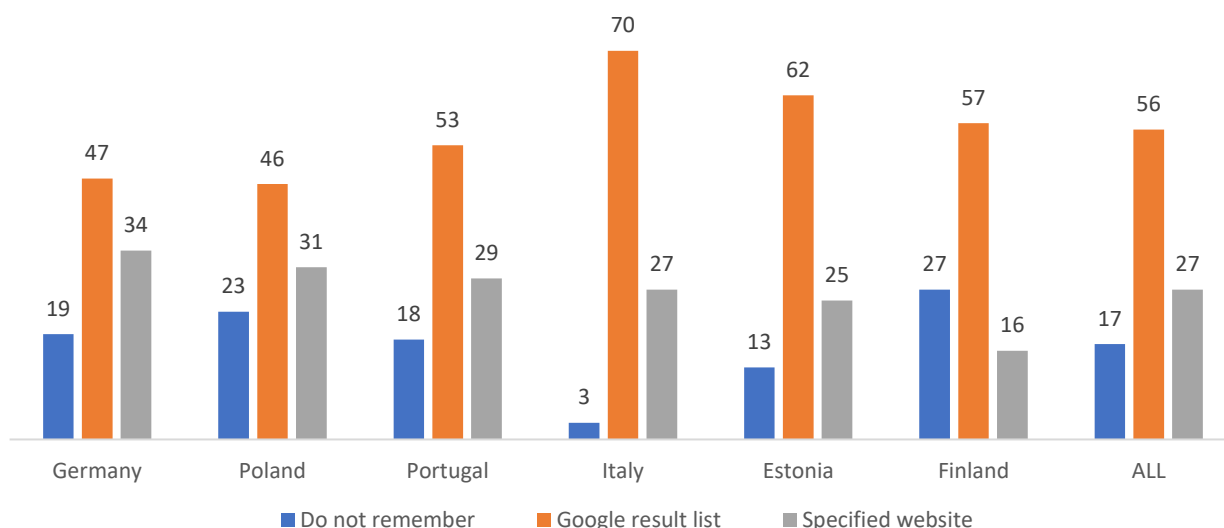


Figure 3.3 shows that 18% of the children did not account for the time range when searching, although explicitly asked (ranging from 11% in Estonia and Germany to 26% in Poland). Furthermore, on average 30% of the children entered the time frame directly in the search bar (ranging from 22% of the children in Italy to 50% in Estonia). The most accurate option, using Google search tools, was across all countries applied by 44% of the children (ranging from 35% in Italy to 55% in Finland). Although children in Finland did perform relatively worse on searching for information, the results of this task show that the percentage of children who use Google search tools was the highest among all countries.

3.1.2 Evaluating information

After the first search task, the children were given a follow-up task (1.2) inquiring about the source they used to answer the question from task 1.1 (note: task 1.2 was provided on a separate page, and the children did not have access to their answer or information from task 1.1 while addressing it). The purpose was to check whether the children were aware of the website they obtained their information from. The results are presented in Figure 3.4.

Fig. 3.4 Sources used to answer the first search task (%)
(countries ordered by Specified website: high - low)



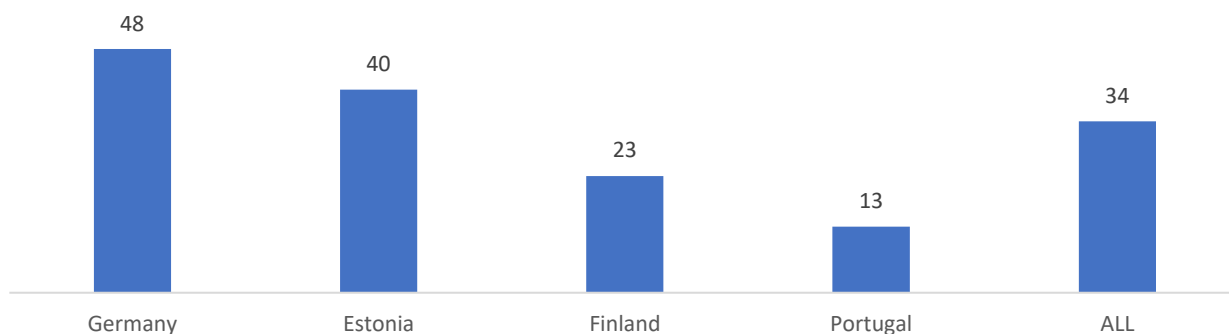
Among all the children, 17% did not remember the website they used to find their answer, and 56% derived their answer directly from the Google results page (without proceeding to the actual website the results referred to). Overall, 27% of the children chose the best option, namely specifying the exact website they visited to provide their answer (ranging from 16% in Finland to 34% in Germany). Figure 3.4 reveals that in Italy, a relatively high number of children used the Google results page as a direct information source. The number of children who did not remember the website where their answer was found was relatively high in Finland and relatively low in Italy.

In task 1.6, children were asked to rank search results that provide information about Greta Thunberg. They were asked to rank the results based on their assessment of the objectivity and reliability of the presented information. The task was coded as correct when the two results that are most likely to present objective and reliable information were selected, in this case Wikipedia and the official website of the United Nations (in contrast to links to personal blogs and a Facebook post). Although children might question whether Wikipedia is a reliable source, it is still more objective than blog or Facebook posts. Figure 3.5 shows that the ranking appeared to be quite difficult as overall 34% of the children were able to identify the two most objective and reliable search result links. The differences



between the six countries are large when looking at the success rates in Germany (48%) and Estonia (40%) as opposed to Finland (23%) and Portugal (13%).

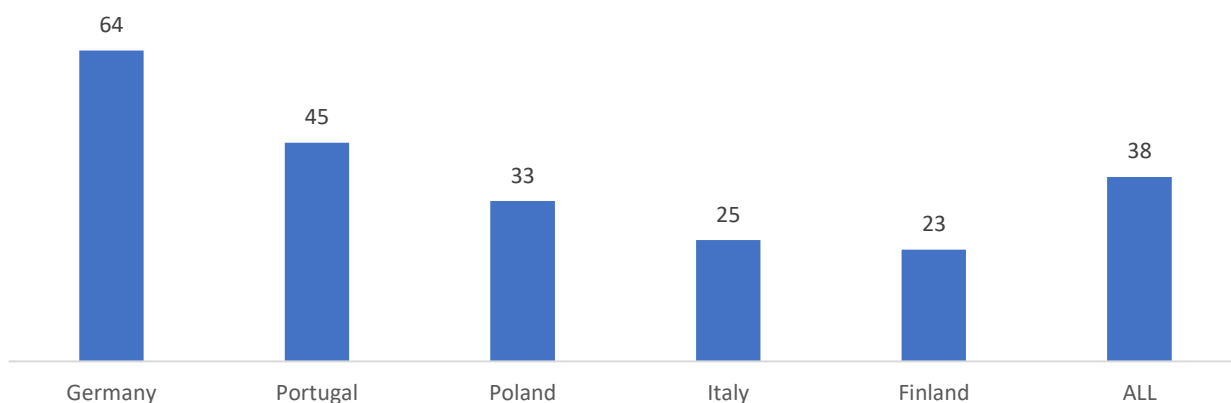
Fig 3.5 Identification of most objective and reliable websites (%)



Note: No data for Poland and Italy.

In a similar task (2.1), children were asked which of five presented websites was *least* likely to provide reliable and objective information concerning climate change. Of the five websites, two sources were considered most questionable (a blog and a fossil energy company). When one of these options was selected, the task was coded as correct (see Figure 3.6).

Fig 3.6 Identification of least objective and reliable website (%)



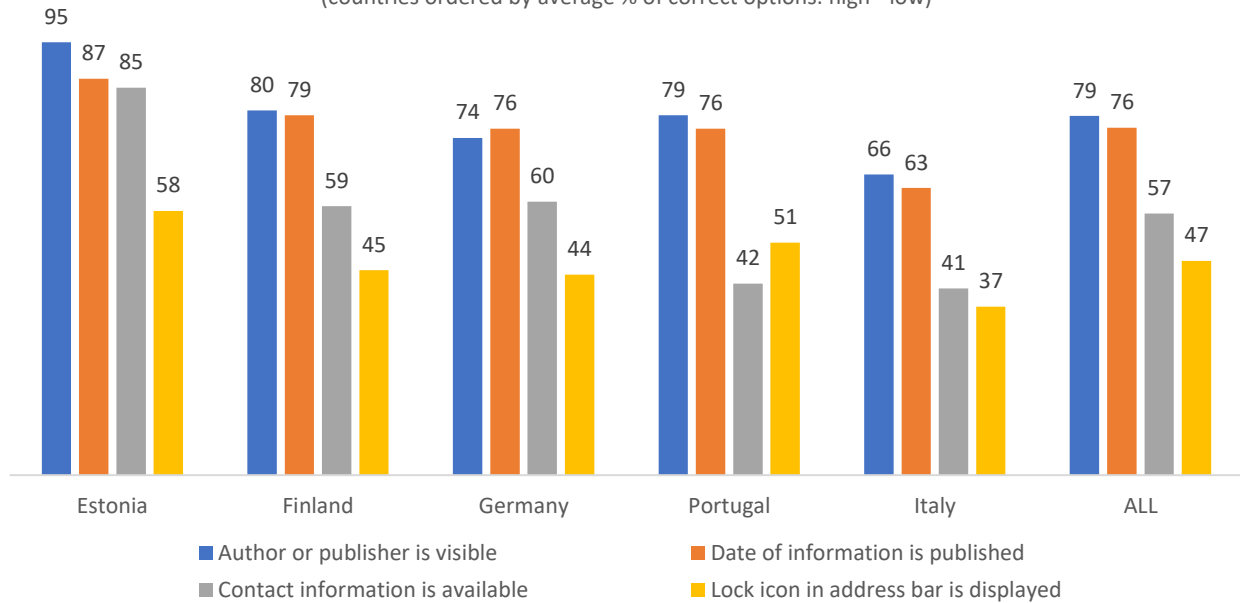
Note: No data for Estonia.

Figure 3.6 shows that overall 38% of the children selected one of the two websites most inclined to provide less objective information. In Germany, the number of children was relatively high with 64%, contrary to Finland where only 23% of the children appeared able to identify one of the two questionable sources.

The children were also asked what makes a website trustworthy (task 1.7). They were presented several choice options: 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; and Colourful design is used. Correct were considered the *presentation of contact information, the date of the information, the mentioning of an author or publisher, and the displaying of a lock icon in the address bar*. Figures 3.7 shows the percentage of children that selected each of the correct options and Figure 3.8 shows the percentage of children that selected 0, 1, 2, 3, or 4 of the correct criteria. Figure 3.9 shows the percentage of children that selected incorrect options.



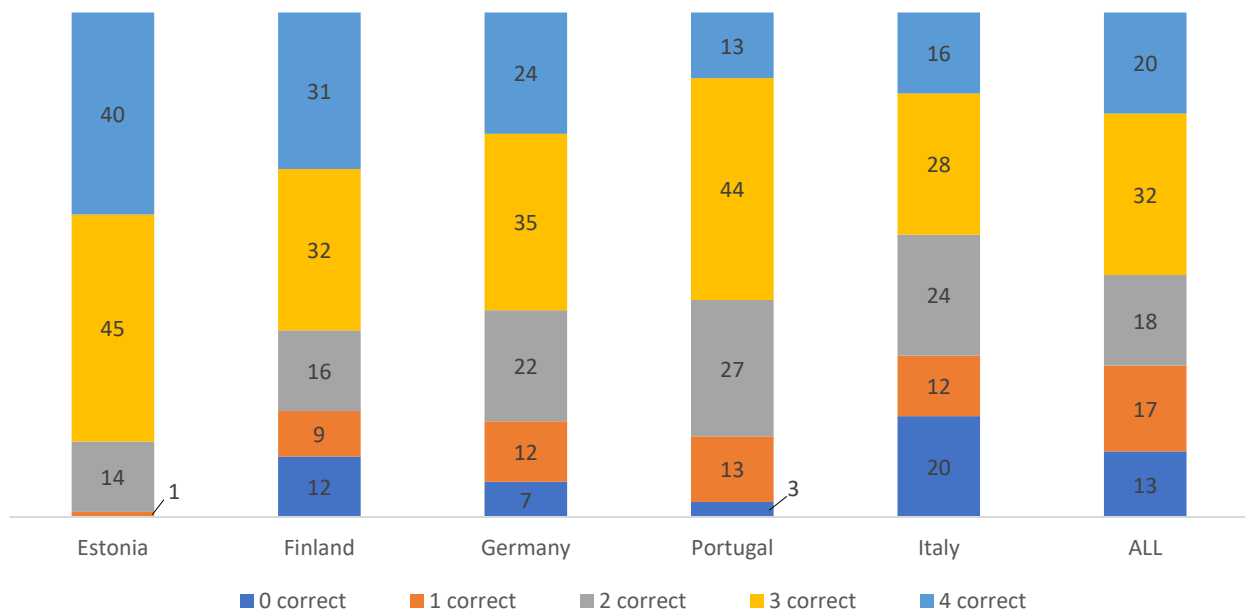
Fig 3.7 Criteria that indicate that a website is trustworthy (%)
(countries ordered by average % of correct options: high - low)



Note: No data for Poland.

Figure 3.7 shows that on average 79% of all children considered the *visibility of the author or publisher* as an indication of trustworthiness (ranging from 66% in Italy to 95% in Estonia), 76% considered the *presentation of the date of information* (ranging from 63% in Italy to 87% in Estonia), and 57% the *presence of contact information* (ranging from 41% in Italy to 85% in Estonia). The *lock icon* was mentioned the least with on average 47% (ranging from 37% in Italy to 58% in Estonia). Figure 3.8 shows that, over all countries, 20% of the children selected all four correct criteria and 32% selected three. Notable was that 13% of the children did not select any of the correct criteria.

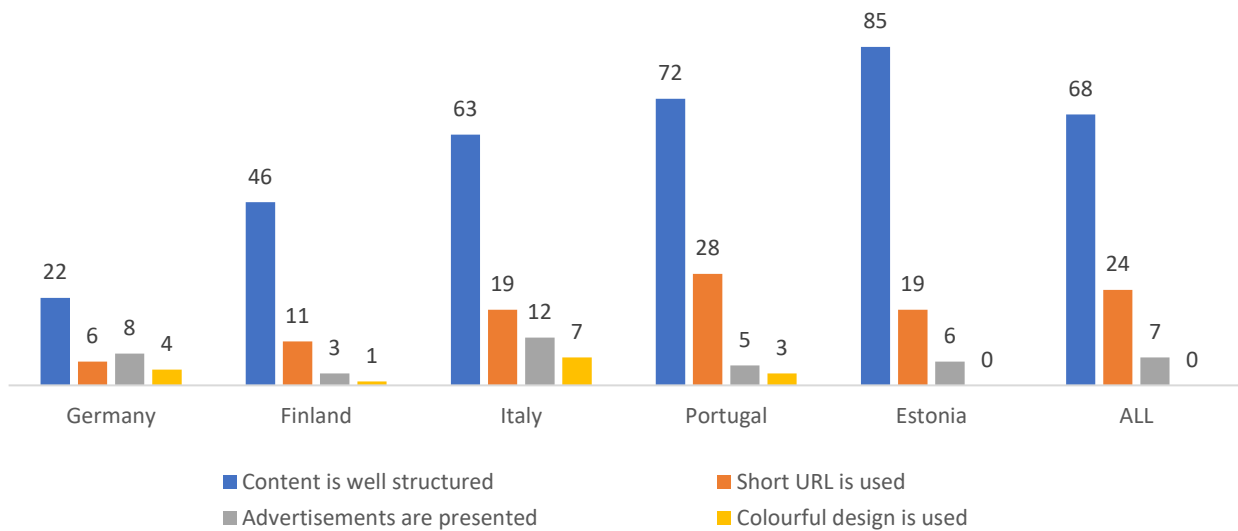
Fig. 3.8 Number of selected correct criteria (%)
(countries ordered by 4 correct)



Note: No data for Poland.



Fig 3.9 Criteria that do not indicate that a website is trustworthy (%)
(countries ordered by average % of incorrect options: low - high)

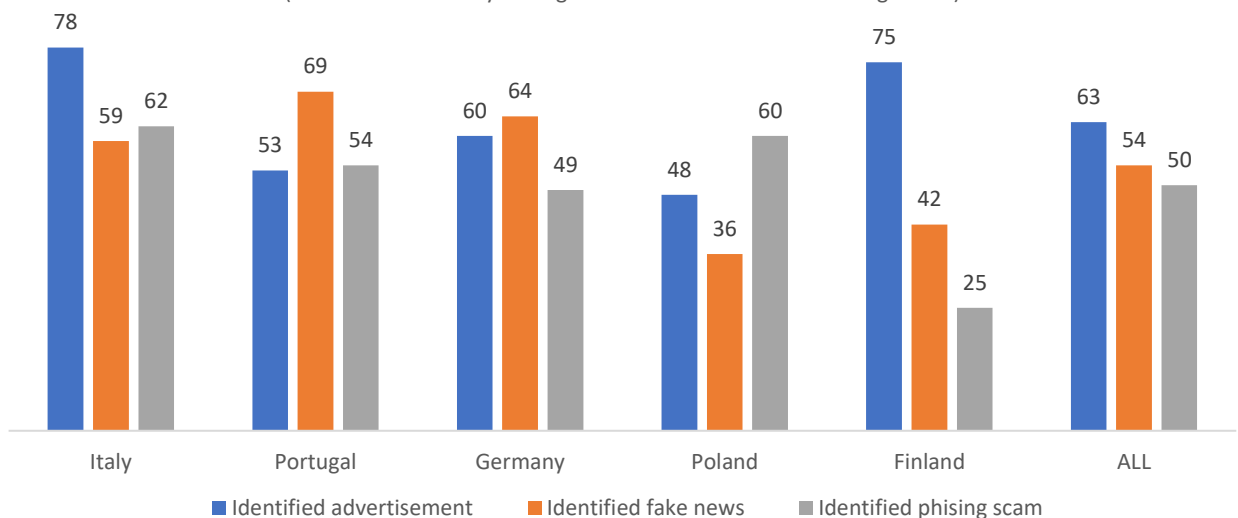


Note: No data for Poland.

Figure 3.9 furthermore reveals that on average 68% of children also consider *well-structured content* as a sign of trustworthiness (ranging from 22% in Germany to 85% in Estonia). *The use of a short URL* was mentioned by 24% (ranging from 6% in Germany to 28% in Portugal) and *the presence of advertisements* as a trustworthy element by 7% (ranging from 3% in Finland to 12% in Italy).

One task (2.2) involved the critical processing and evaluation of digital sources of information. Children were asked to take a close look at the textual and visual information of three social media posts. The three posts subsequently represented an advertisement, fake news, and a phishing scam. After each post, children were asked about the intention of the creator of the post. They were presented with several options: Advertisement, Fake news, Identity theft, News article, Opinion piece, Phishing scam, and Spam. Post 1 was coded as correct when the advertisement was selected, post 2 was fake news, and post 3 a phishing scam. The results are presented in Figure 3.10.

Fig 3.10 Identification of social media post intentions (%)
(countries ordered by average % of correct identifications: high - low)



Note: No data for Estonia.



Figure 3.10 shows that on average, 63% of the children were able to successfully identify social media post 1, 54% post 2, and 50% post 3. There are substantial differences between the countries. In Italy, for example, 78% of the children successfully identified a post as advertisement, while in Poland this was 48%. In Portugal, 69% of the children identified fake news, while this was 36% in Poland and 42% in Finland. In Poland, 60% of the children identified the phishing scam, in contrast to 25% in Finland. On average, children in Italy performed best, followed by children in Germany and Portugal.

Fig. 3.11 Number of social media posts successfully identified (%)
(countries ordered by 3 correct: high - low)

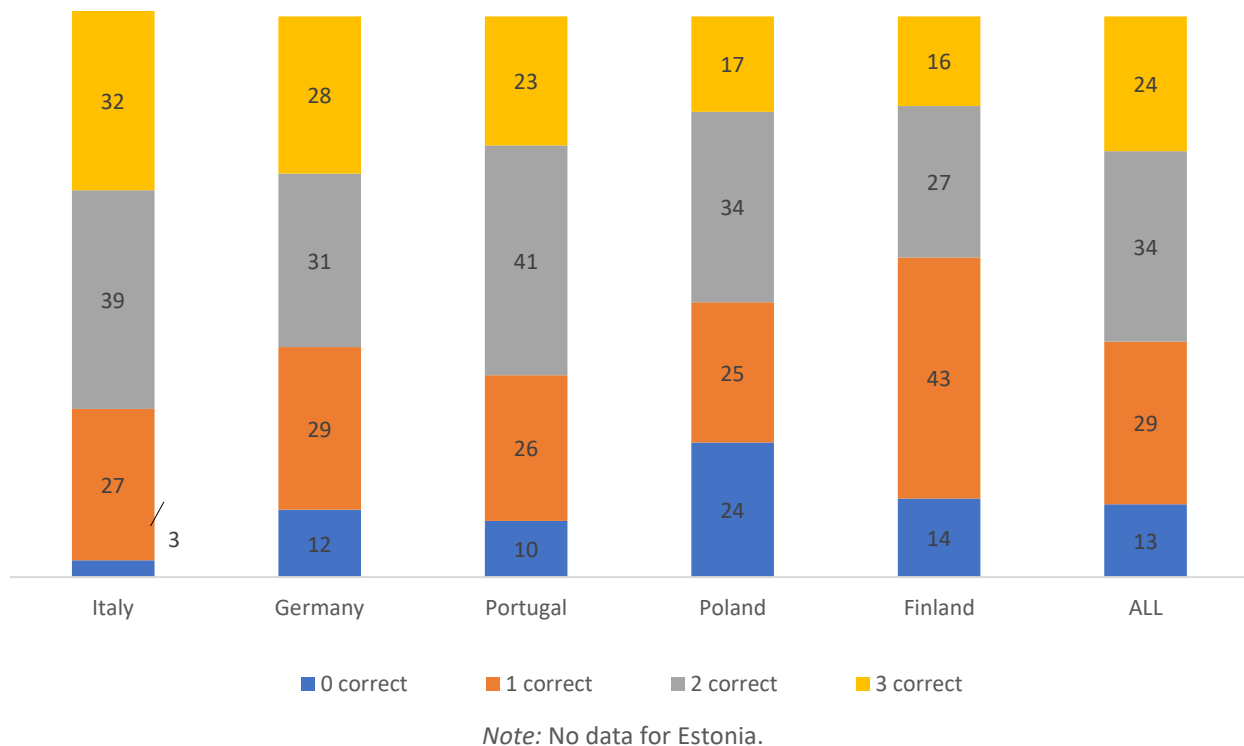


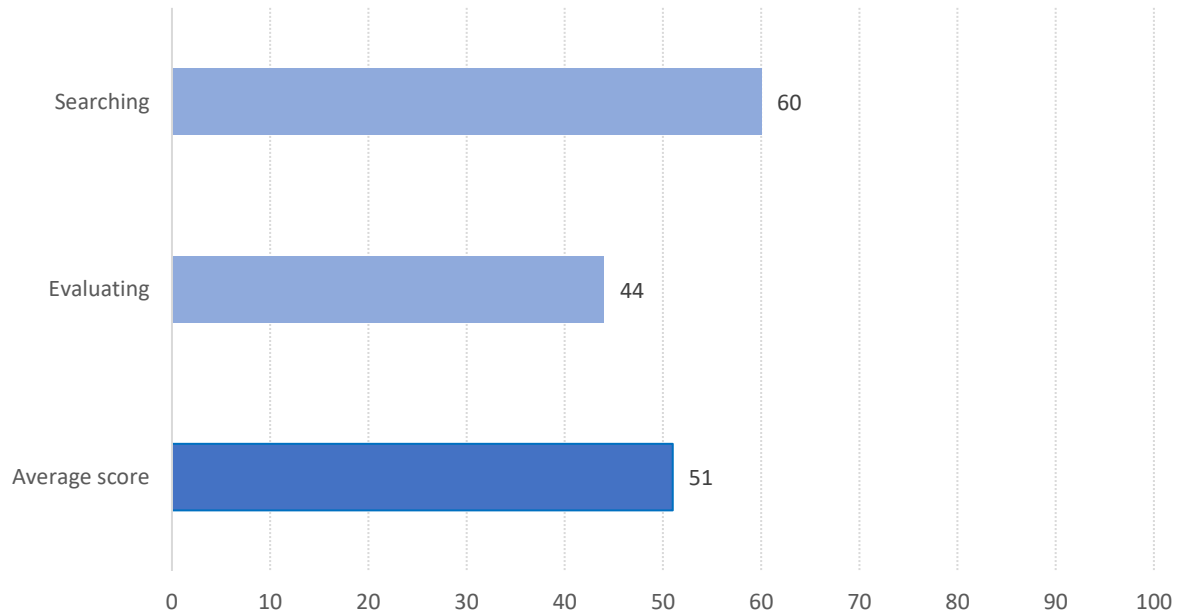
Figure 3.11 shows the number of posts that were successfully identified in each country. Over all countries, 24% of the children successfully identified all three posts, 34% two posts, 29% one post, and 13% did not identify any of the three posts. The percentage of children who successfully identified all posts was the highest in Italy and the lowest in Finland. In Poland, the percentage of children who failed to identify the intentions of all posts was relatively high with 24%.

3.2 Overall performance on information navigation and processing skills

To compute an average score for the performance of information navigation and processing skills, the scores (percentages of correct answers) on the main search tasks (tasks 1.1, 1.3, 1.4, and 1.5) and the main evaluation tasks (tasks 1.2, 1.6, 2.1, and 2.2) are averaged. Figure 3.12 raises doubts as to whether children have sufficient skills to benefit from online information provision. Especially the level of skills related to the evaluation of information is worrisome. This is further discussed in the conclusion chapter.



Fig. 3.12 Average score for information navigation and processing skills (%)



3.3 Indicators for performance differences

As the performance tests were conducted among a subsample of children who also participated in a longitudinal survey study, some background variables were available: gender, age, number of daily online activities undertaken online, support from friends, and having a supporting family environment. The contribution of these variables to the performance test results was tested by conducting regression analyses for *the number of search tasks completed successfully* (0-3; $F(5,343)=1.52, p<.01, R^2=.02$), *the identification of least reliable websites* ($\chi^2=2.13(5), p=.83$, Nagelkerke $R^2=.01$), *the number of correct criteria to assess the trustworthiness of a website* (0-4; $F(5,368)=11.78, p<.001; R^2=.14$), and *the number of social media posts for which the intention was correctly identified* (0-3; $F(5,296)=0.71, p=.62; R^2=.01$).

Table 3.1 Determinants for number of searches completed successfully, all countries

	Gender (M/F)	Age	# of online Activities	Friend support	Family support
# search tasks completed successfully	ns	ns	ns	ns	ns
Identification of least reliable websites	ns	ns	ns	ns	ns
# correct criteria for website trustworthiness	ns	+	ns	+	+
# social media post types correct	ns	ns	ns	ns	ns

Note: ns = not significant; + = positive contribution (significant at <.05 level)

Table 3.1 shows that none of the variables contributed to the number of search tasks completed successfully, the identification of the least reliable websites, and the identification of the social media post intentions. For the number of criteria that indicate the trustworthiness of a website, age, support from friends and a supporting family environment appear as positive contributors.



4 Level of communication and interaction skills

4.1 Test results and country level comparisons

4.1.1 Receiving and sharing information of others

Module 2 of the performance test presented children with communication and interaction skill tasks. In the first task of this module (1.1), children were presented four social media posts to test their awareness of what is being shared online. The children were asked to indicate which of four posts was certainly not okay to share with others without asking for permission first. The correct answer was the fourth post as this clearly showed the faces of two private individuals (see Appendix A for this and the other three posts). The results are presented in Figure 4.1.

Fig. 4.1 Identification of post that needs permission before sharing (%)

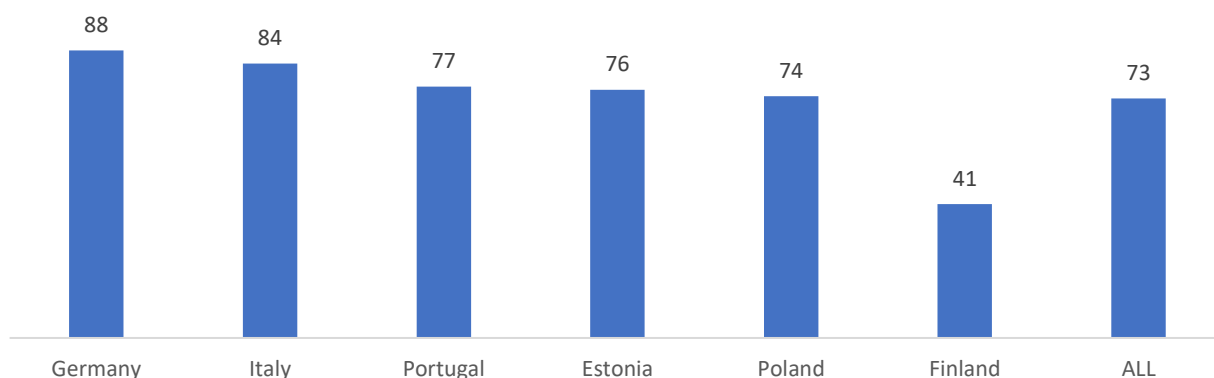


Figure 4.1 reveals that overall 73% of all children selected the correct post. In Finland this percentage was relatively low with 41% as in the other countries percentages ranged from 74% to 88%.

The second task of Module 2 (1.2) asked about nasty and sexist comments received from an unknown person. The children were asked to indicate the *two* best steps to take after receiving these comments. Several choice options were provided of which *blocking the person* and *warning a parent or teacher* were considered the best. The results are presented in Figures 4.2a and 4.2b.

Fig 4.2a Selection of the two preferred actions after receiving nasty comments (%)
(countries ordered by *both* actions selected)

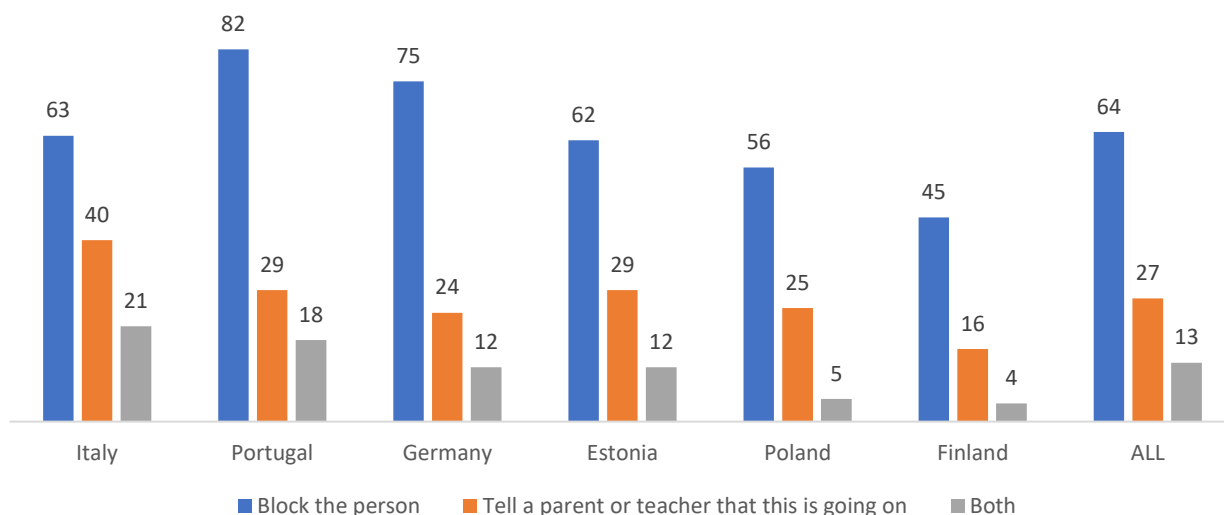


Fig 4.2b Selection of other actions after receiving nasty comments (%)
(countries ordered by average of other actions: low - high)

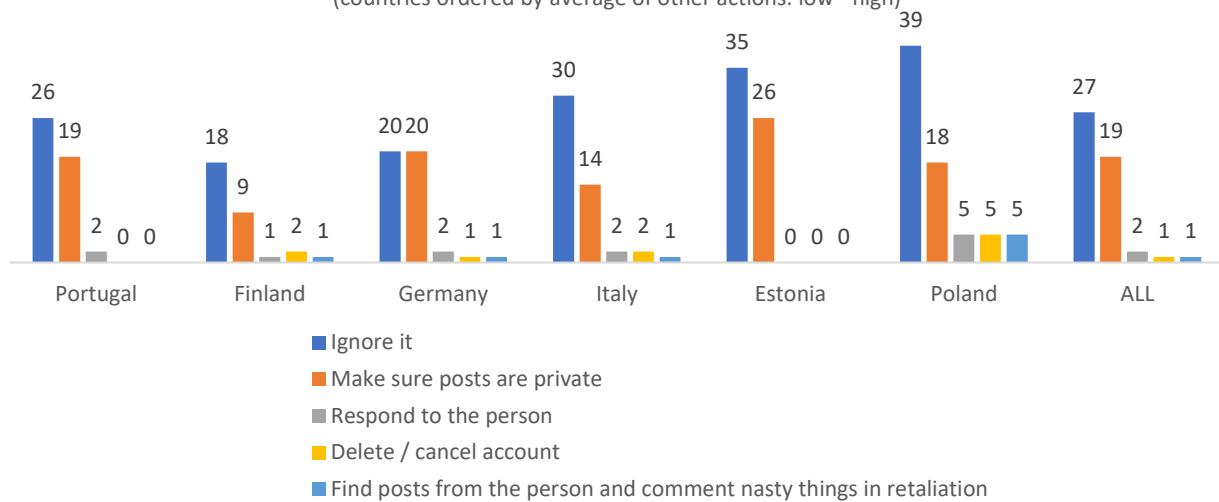


Figure 4.2a shows that, on average, 64% of the children considered *blocking the person* who is sending nasty comments as one of the two best options (ranging from 45% in Finland to 82% in Italy). Only 27% considered *warning a teacher or parent* as one of the best two options (ranging from 16% in Finland to 40% in Italy). Figure 4.2b furthermore shows that 27% considered *ignoring the messages* as one of the two best options, and 19% considered to *make sure the posts are private*. In Poland and Estonia, the percentage of children who selected ignoring the nasty messages is relatively high.

4.1.2 Interacting with others

In the third task of the second module (2.1), the children were first asked to envision a discussion with their teacher and classmates. They were asked what medium would best be used for this discussion. Provided options ranged from WhatsApp, Instagram, and Facebook (Messenger) to a videocall platform (e.g., Zoom or Teams), Facetime, Email, or a school platform. Although the choices for a particular medium also depend on school preferences, the preferred options were a *videocall* or using a *school platform* as these provide instant feedback and visual cues (see Figures 4.3a and 4.3b).

Fig 4.3a Choosing preferred media for Child – Teacher / Classmate discussion (%)
(countries ordered by average of preferred options: high - low)

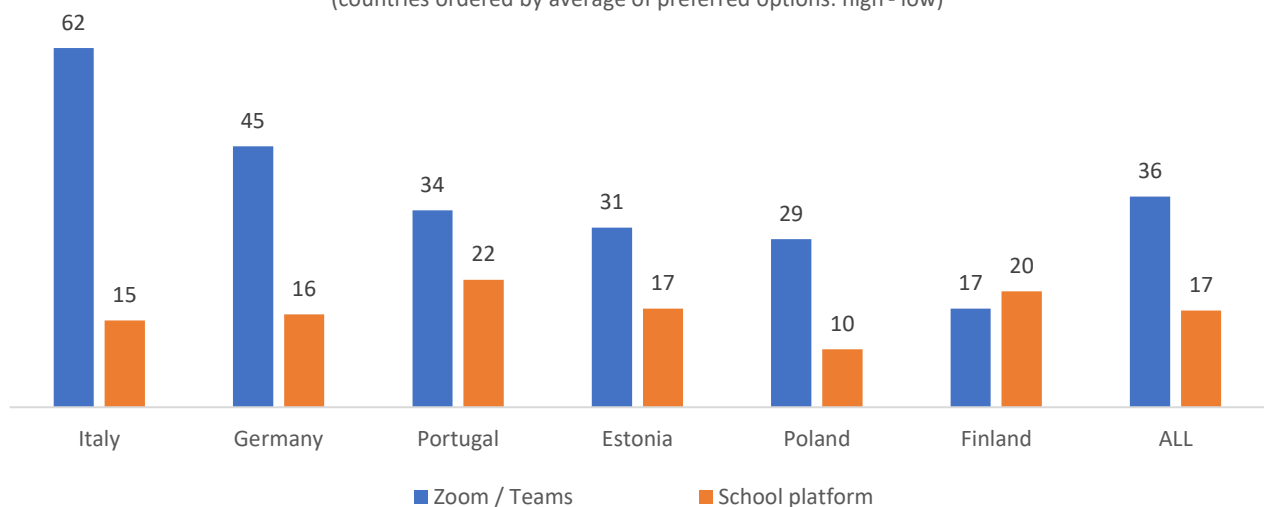


Fig 4.3b Choosing other media for Child – Teacher / Classmate discussion (%)
(countries ordered by average of other media: low - high)

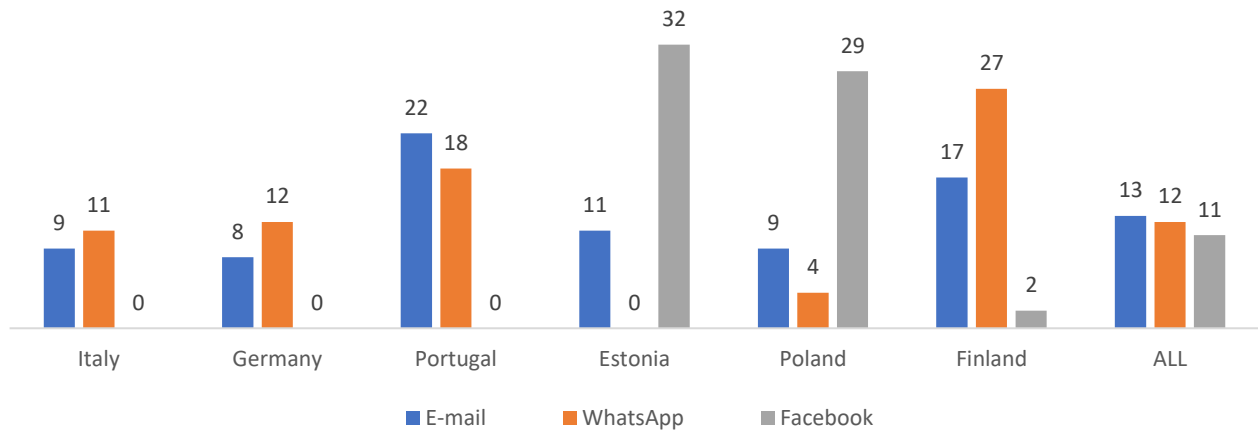


Figure 4.3a shows that, on average, 36% of the children would opt for a medium like *Zoom or Teams* for a discussion with a teacher and classmates (ranging from 17% in Finland to 62% in Italy). A *school platform* was selected on average by 17%. Figure 4.3b also reveals that *e-mail* was selected by 13% (ranging from 22% in Portugal to 8% in Germany), *WhatsApp* by 12% (ranging from 27% in Finland to 4% in Poland), and *Facebook* by 11% (ranging from 0% in Italy and Germany to 32% in Estonia). Other platforms such as Instagram, Facetime, or a phone call were hardly selected.

The children were then asked which media they would use to contact an expert. The same choice options as mentioned in the prior situation were provided. The best options for establishing first contact with the expert are using the *phone* or *e-mail* (see figures 4.4a and 4.4b).

Fig. 4.4a Best options to contact an expert (%)
(countries ordered by average of best options: high - low)

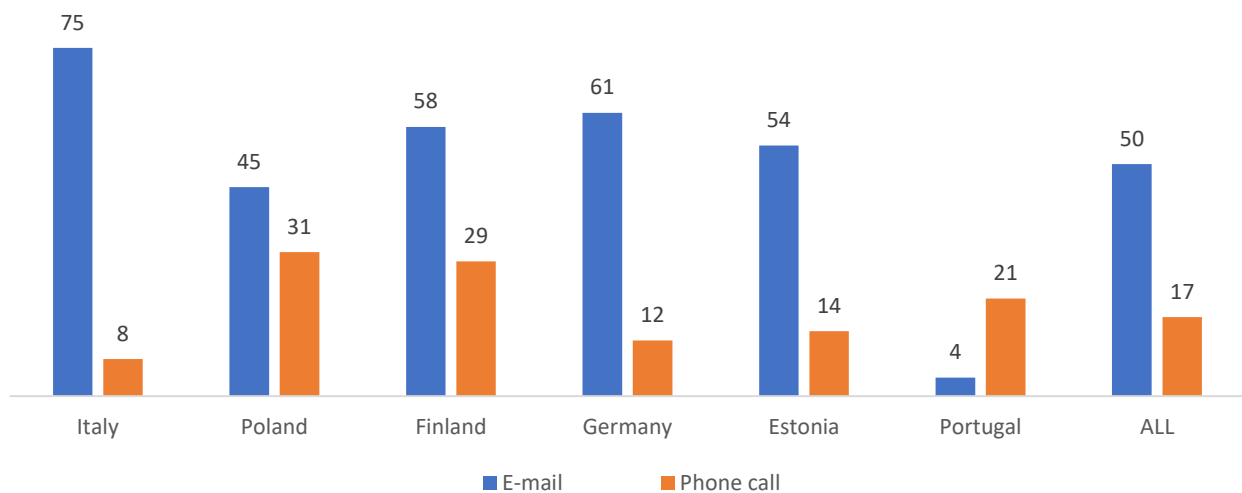
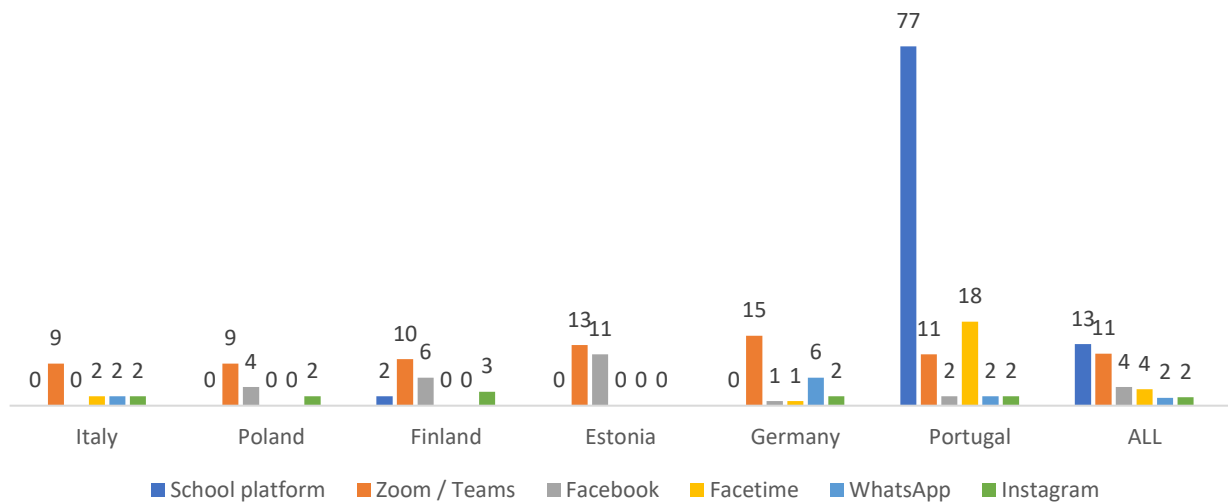


Figure 4.4a shows that on average, 50% of the children would use *e-mail* for establishing contact with an expert. In Italy, this is 75% and in Poland 45%. Furthermore, 17% would make a *phone call* (ranging from 8% in Italy to 31% in Poland). According to Figure 4.4b, 13% would use the school platform (77% in Portugal, which might explain why e-mail and phone call options were hardly opted for in this country) and 11% Zoom or Teams (13% in Estonia and 15% in Germany).



Fig. 4.4b Other options to contact an expert (%)
(countries ordered by average of other media: low - high)



The performance test also included a task about the platform *Zoom* (2.2). The task evolves around the preferred settings when a teacher is speaking, both from the point of view of a child that is participating and from the viewpoint of other children in the session. The provided choice options are: Mute myself, Show speaker view, Turn off camera, and Make chat box visible. For the viewpoint of the child, the option *muting myself* is considered the best option when the teacher is speaking to class (see Figure 4.5).

Fig 4.5 Personal Zoom settings when teacher is speaking (%)
(countries ordered by Mute myself setting: high - low)

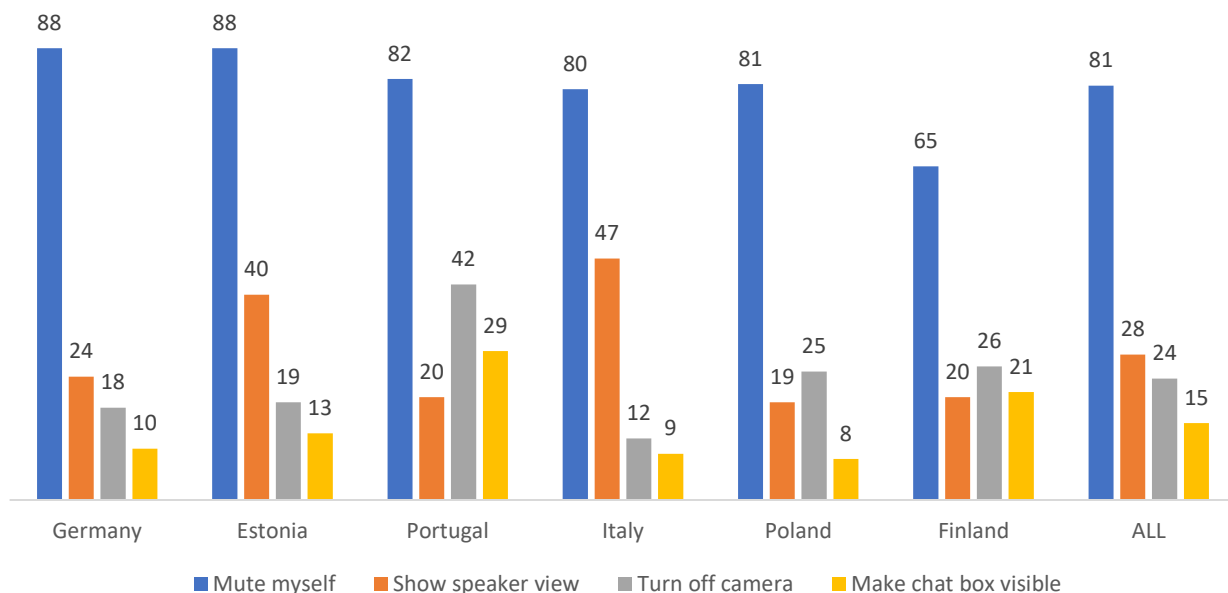


Figure 4.5 shows that the *mute myself* option was chosen by 81% of all participating children. Remarkable is that 28% also considers *showing speaker view* as the preferred setting (ranging from 19% in Poland to 47% in Italy), and 24% *turning off their camera* in a class meeting (ranging from 18% in Germany to 42% in Portugal).



For the settings of the other children in the *Zoom* class session, the options are: I would not make any changes (to the *Zoom* settings shown in the screenshot in the performance test); Make sure that they have their camera on; Make sure that they have a picture of themselves; Make sure that their entire face can be seen; Make sure they have their microphone off; Have their name displayed; Use their phone rather than their laptop; and Have a funny virtual background. Considered correct are *camera on*, *entire face to be seen*, *microphone off*, and *name displayed*. The percentages of children who chose each of the options are shown in Figures 4.6a and 4.6b.

Figure 4.6a demonstrates that all children chose to have the name displayed, 50% selected turning the microphone off, 29% to have the camera on, and 17% ensured that their entire face could be seen. When comparing the different country results, remarkable is that in Portugal *turning the camera and microphone off* were rarely selected. Figure 4.6b reveals that of all children 8% would use a *funny virtual background* and 16% would *not make any changes*. Furthermore, 31% would *use their phone rather than their laptop* (ranging from 0% in Portugal to 47% in Estonia).

Fig 4.6a Preferred Zoom settings of others in class (%)
(countries ordered by Mute myself setting: high - low)

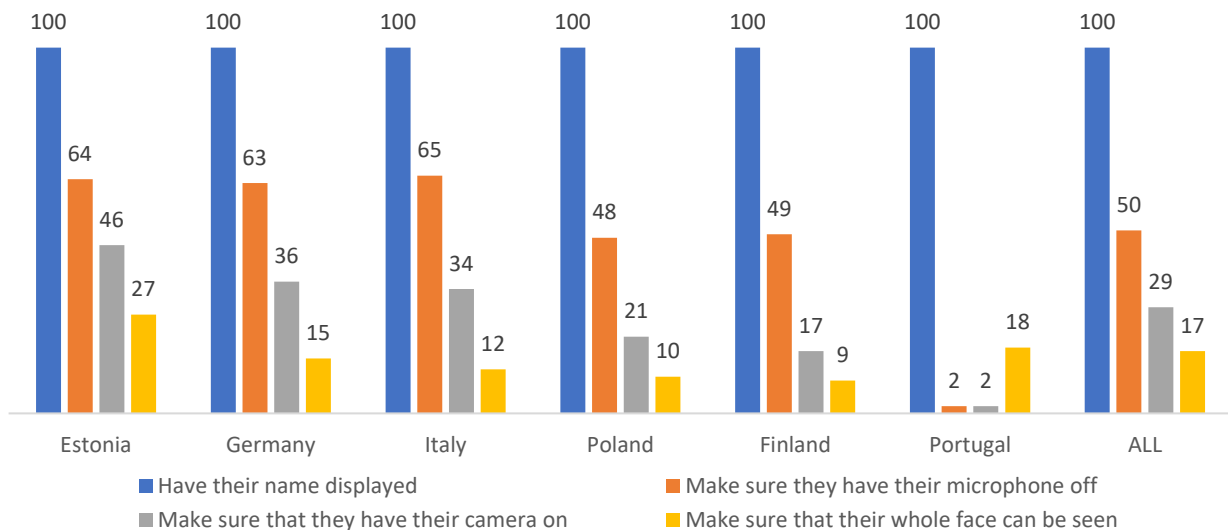
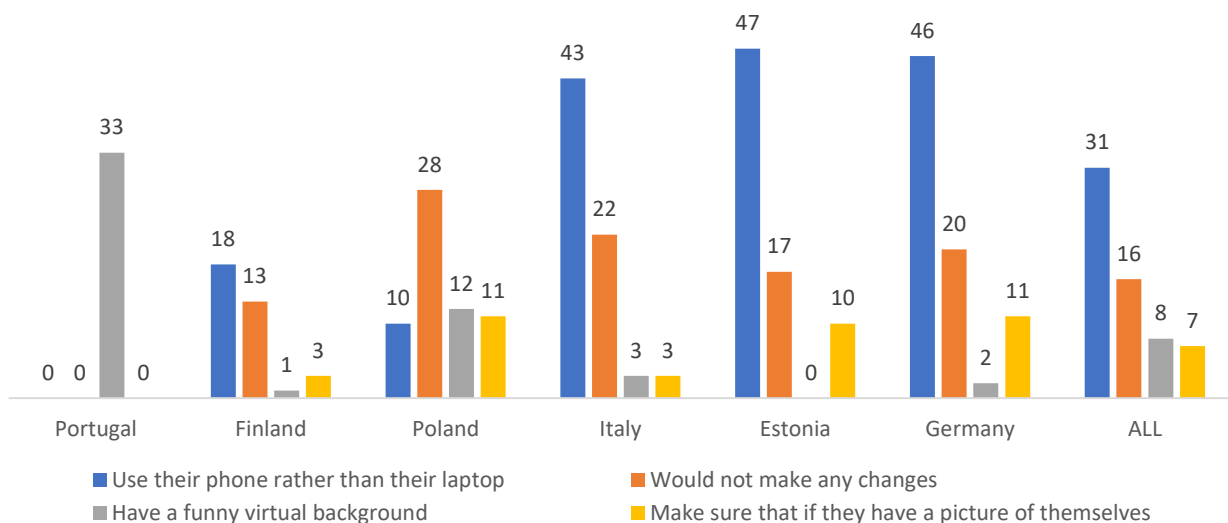
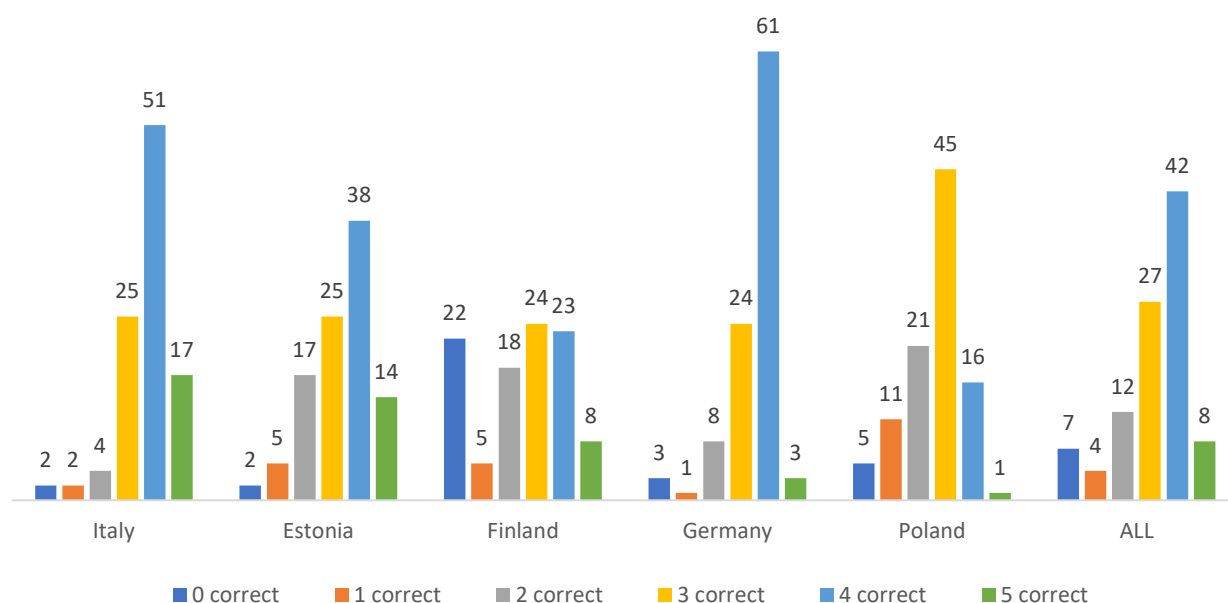


Fig 4.6b Other Zoom settings of others in class (%)
(countries ordered by average of other options: low - high)



The performance test also contained a task on contacting an expert about COVID-19 via e-mail (2.3). The task provides a structure for constructing an e-mail by separating five parts. All parts have several text-options that can be selected for writing the e-mail: (Part 1) Introduction, (correct is considered the option ‘Dear Sir, Madam’), (Part 2) Thanks (correct is the option ‘Thank you for accepting my request to talk about the COVID-19 policy’), (Part 3) Exchange details (correct is the option ‘I look forward to speaking to you soon. Perhaps we could communicate via email to set up a date and time for a meeting’), (Part 4) Date and time (correct is the option ‘Could you please let me know your next availability? I am happy to meet online or in person, depending on your preferences’), and (Part 5) Conclusion (correct is the option ‘Thank you in advance, and best wishes, [your name]’ (see Appendix A for the other text options). The results are presented in Figure 4.7.

Fig 4.7 Number of correct components for an e-mail (%)
(countries ordered by 5 correct: high - low)



Note: No data for Portugal.

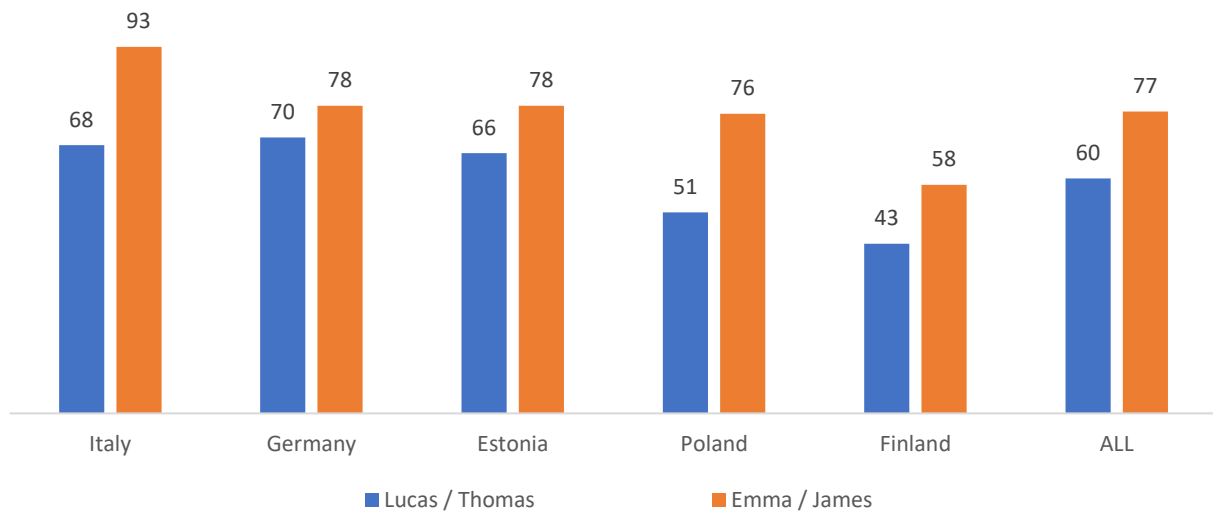
Figure 4.7 shows that 8% of the children chose the correct text-options in all five parts (ranging from 1% in Poland to 17% in Italy), and 42% chose the correct options in 4 parts (ranging from 16% in Poland to 61% in Germany). Furthermore, 7% of all children did not select correct text-options in any of the parts (ranging from 2% in Italy and Estonia to 22% in Finland). Additional analyses revealed that the highest level of difficulty was encountered in the introduction (only 26% of all children selected the correct text-option), and in the exchange of details section of the email (41% of all children correct).

4.1.3 Intimate conversation with friends

In the third part of Module 2, the children were presented with two *WhatsApp* conversations about a school project (3.1a and 3.1d). These tasks involved the critical evaluation of the impact of interpersonal mediated communication and interactions on others. After both chat conversations, a question was asked about whether there was something problematic in these conversations. The messages in the conversations were numbered and were referred to in the multiple-choice options provided. The first chat was between Lucas and Thomas and was coded as correct when messages 4 and 6 were selected. In the chat between Emma and James, none of the messages were problematic (see Figure 4.8 for the results).



Fig 4.8 Identification of problematic messages in chats between classmates (%)
(countries ordered by average of all correct comments: high - low)

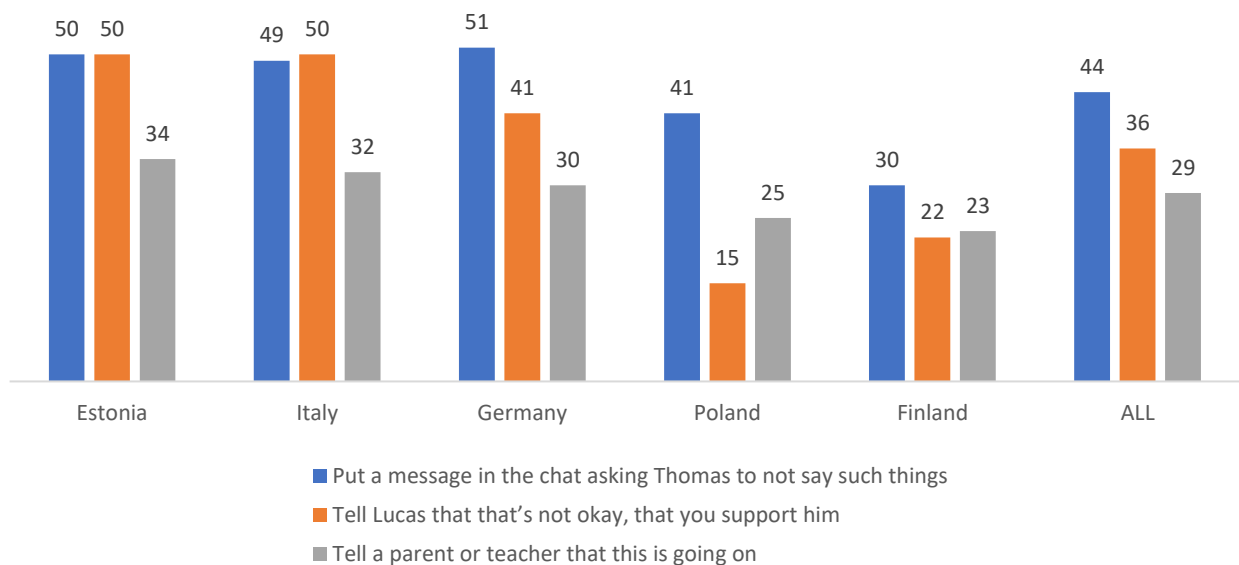


Note: No data for Portugal.

According to Figure 4.8, 60% of all children identified the problematic messages in the chat between Lucas and Thomas and 77% in the chat between Emma and James. Children in Italy performed relatively well, followed by Germany and Estonia. In Finland, the percentages of children that identified the problematic messages were relatively low.

After the chat between Lucas and Thomas, a follow-up task (3.1b) asked the child what to do if this kind of conversation happened in a group that the child belongs to. Coded as most appropriate actions were adding a message in the chat *asking Thomas to not say such things*, *telling a parent or teacher that this is going on*, and *telling Lucas that Thomas' messages are not okay and that you support him* (see Figures 4.9a and 4.9b for the results).

Fig 4.9a Selection of preferred actions after problematic messages occur in a chat (%)
(countries ordered by average of all best actions: high - low)



Note: No data Portugal.



Fig 4.9b Selection of other actions after problematic messages occur in a chat (%)
(countries ordered by average of all other actions: low - high)



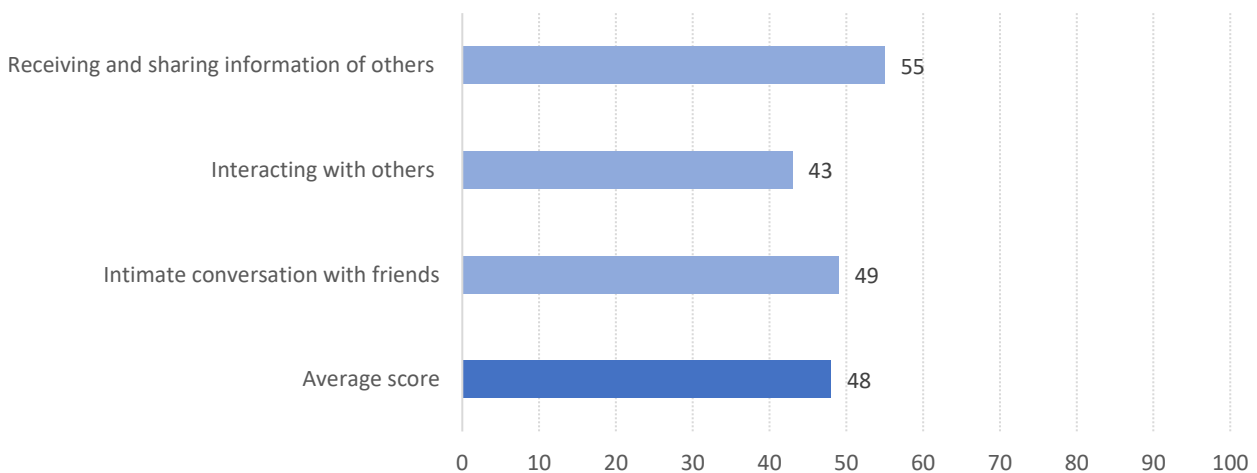
Note: No data Portugal.

Figure 4.9a shows that on average 44% of the children indicated *to put a message in the chat asking Thomas not to say such things* (ranging from 30% in Finland to 51% in Germany), 36% would *support Thomas by telling him the messages are not ok* (ranging from 15% in Poland to 50% in Estonia and Italy), and 29% would *tell a parent or teacher that this is going on* (ranging from 23% in Finland to 34% in Estonia). Figure 4.9b furthermore shows that 22% would *throw Thomas out of the group* (ranging from 12% in Finland to 34% in Estonia) and 17% would *ignore the messages* (ranging from 9% in Italy to 26% in Estonia).

4.2 Overall performance on communication and interaction skills

To compute an overall score for communication and interaction skills, we averaged the scores (percentages of correct answers) on receiving and sharing information of others (tasks 1.1 and 1.2), interacting with others (tasks 2.1a-c, 2.2a-b, and 2.3), and intimate conversation with friends (tasks 3.1a-d). The results are presented in Figure 4.10. The figure shows that children had most difficulties in the *interacting with others* tasks, yet the average scores on the *receiving and sharing information of others* and *intimate conversation with friends* tasks are also not convincing.

Fig. 4.10 Average score for communication and interaction skills (%)



4.3 Indicators for performance differences

The significant contribution of gender, age, number of daily online activities performed online, support from friends, and family environment to communication and interaction skills was tested by conducting regression analyses. Dependent variables in the equation were *the correct identification of the post type that needs permission before sharing* ($\chi^2=0.91(5)$, $p=.97$, Nagelkerke $R^2=.002$), *selection of the two best actions after receiving nasty comments* ($\chi^2=3.44$, $p=.63$; Nagelkerke $R^2=.04$), *choosing the best media for child-teacher interaction* ($\chi^2=9.69$, $p=.08$; Nagelkerke $R^2=.11$), *choosing the best media to contact an expert* ($\chi^2=7.12$, $p=.21$; Nagelkerke $R^2=.08$), *number of correct components in an e-mail* ($F(5,365)=2.21$, $p=.05$, $R^2=.03$), and *identifying problematic messages in chats between Lucas and Thomas* ($\chi^2=1.87$, $p=.87$; Nagelkerke $R^2=.01$) and *Emma and James* ($\chi^2=8.645$, $p<.001$; Nagelkerke $R^2=.03$) (see table 4.1).

Table 4.1 Determinants for communication and interaction skills, all countries

	Gender (M/F)	Age	# of online Activities	Friend support	Family support
Identification post type	ns	ns	ns	ns	ns
Selection of the two best actions	ns	ns	ns	ns	ns
Zoom or School platform	ns	ns	ns	ns	ns
Email or Phone call	ns	ns	ns	ns	ns
Email composition	ns	+	ns	ns	ns
Problematic messages 1	ns	ns	ns	ns	ns
Problematic messages 2	ns	+	ns	ns	ns

Note: ns = not significant; + = positive contribution (significant at $<.05$ level)

Table 4.1 shows that only age contributes to the performance on two of the communication and interaction skill tasks. Higher age contributes significantly to better e-mail compositions and to better identification of problematic messages in a chat between classmates. All other variables did not appear as significant contributors.

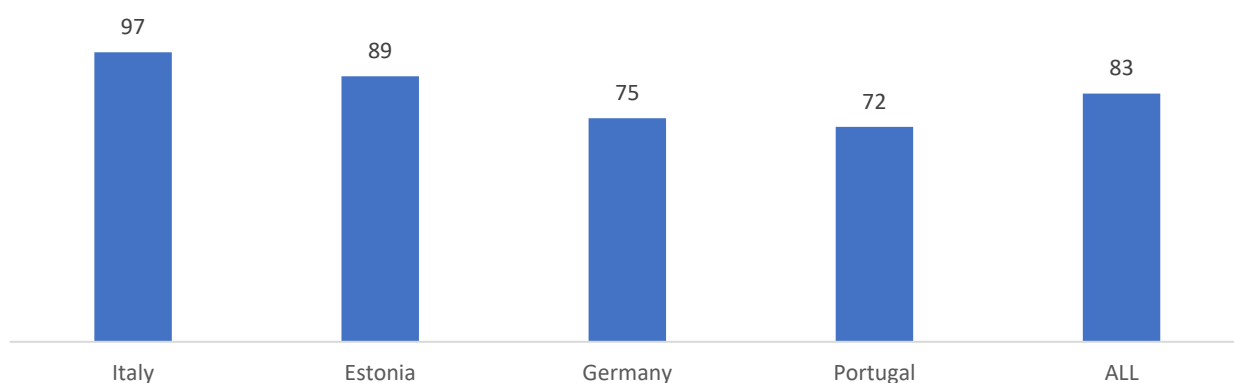


5 Level of Content creation and production skills.

5.1 Test results and country level comparisons

To test the level of content creation and production skills, the performance test contained two tasks in Module 1. In the first task (2.3) children were asked to create a slide (for example in PowerPoint or Google Slides) on the causes of climate change. They were asked to complete a to-do list: use an image as a template for the slide, change the colour of an image to black/white, add a title and a list of three important climate change causes in bullet points, and add a provided video to the slide. A maximum of 15 minutes was set for this task. Figure 5.1 shows the percentage of children who saved and uploaded a slide, and Figure 5.2 shows the percentage of correct actions among those who uploaded a slide.

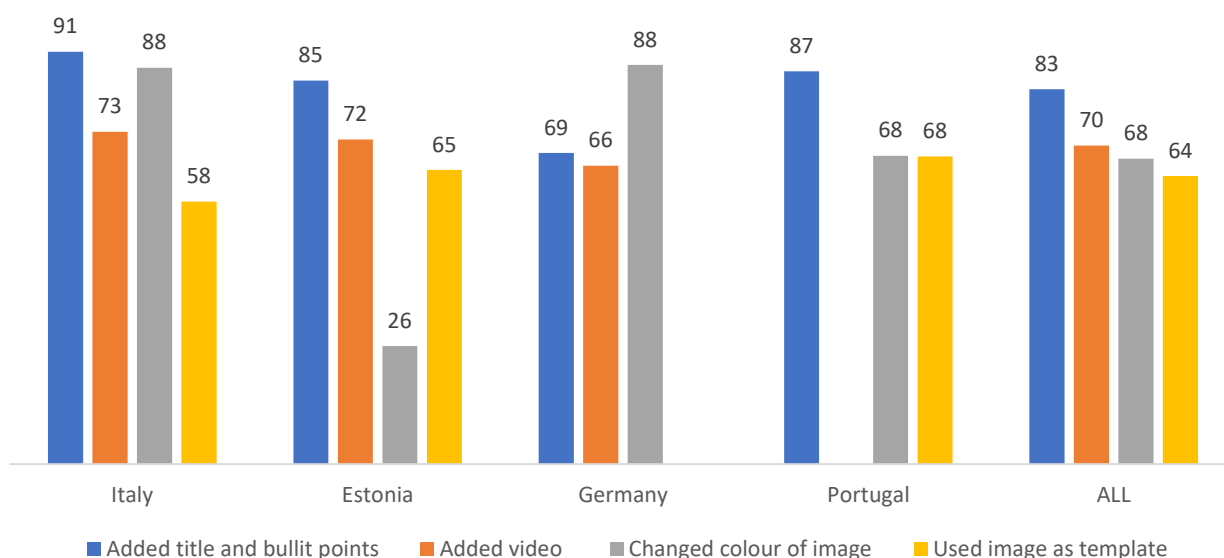
Fig. 5.1 Uploaded a slide (%)



Note: No data for Finland and Poland; 50% missing values for Estonia

According to Figure 5.1, on average 83% of the children in four countries uploaded a slide (ranging from 72% in Portugal to 97% in Italy). The reasons for not uploading a slide were mostly related to technical issues with the devices used. Most interesting here is to further assess the uploaded slides based on the criteria as presented in Figure 5.2.

Fig. 5.2 Applied criteria when creating a slide (% of uploaders only)



Note: No data on template for Germany and on video for Portugal.



Fig. 5.3 All criteria applied to the slide (% of uploaders only)

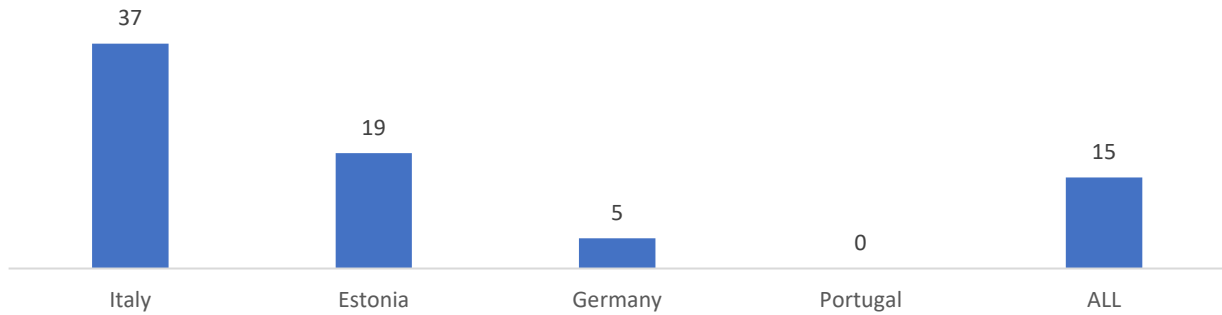
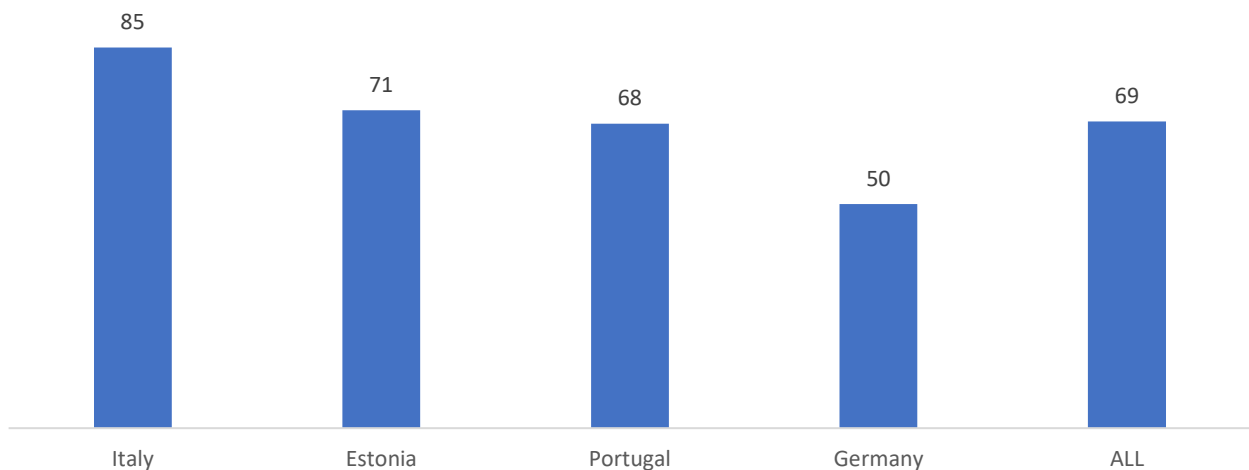


Figure 5.2 shows that among the children that uploaded a slide, 83% *added a title to the slide and three causes of climate change in bullet points*, 70% was able to *add a provided video to the slide*, 64% was able to *use an image as a template for the slide*, and 68% was able to *change the colour of an image to black and white*. Figure 5.3 furthermore shows that 15% of the children applied all these criteria when designing their slides, ranging from 0% in Portugal to 37% in Italy.

Another task (task 2.4) 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. The percentage that uploaded an image was over all countries 74% (82% in Italy, 73% in Estonia, 66% in Portugal, and 50% in Germany). The reasons for not uploading an image are unknown. Figure 5.3 shows the percentage of children that were able to find a copyright-free image (of the image uploaders). This figure shows that on average 69% of the children in four countries selected a copy-right image, ranging from 85% in Italy to 50% in Germany.

Fig. 5.3 Selected a copyright free image (% of image uploaders)



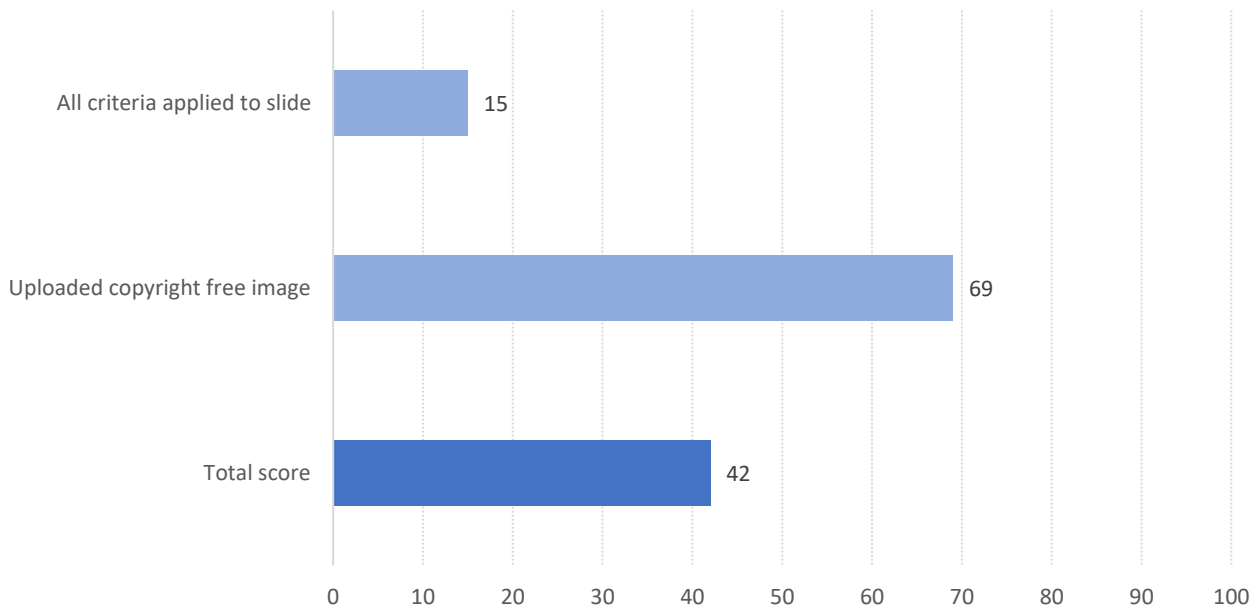
Note: No data for Finland and Poland; 50% missing values for Estonia.

5.2 Overall performance on content creation and production skills

To compute an overall score for the performance on content creation and production skills, we averaged the scores (percentages of correct answers) on children who correctly applied all criteria to the slide (task 2.3) and the scores on uploading a copyright free image (task 2.4). The results are presented in Figure 5.4. The percentage of children who applied all criteria to the created slide is relatively low, while the percentage of children that uploaded a copyright free image is surprisingly high.



Fig. 5.4 Overall score for content creation and production skills (%)



5.3 Indicators for performance differences

Considered as background variables are gender, age, number of daily online activities performed online, support from friends, and family environment. We tested for the significant contribution of these variables to content creation and production skills by conducting regression analyses for the number of criteria applied when creating a slide ($F(5,341)=0.78, p=.56, R^2=.01$) and the ability to find and upload a copyright free image ($\chi^2=17.41, p<.01$; Nagelkerke $R^2=.07$) (see table 5.1 for the results).

Table 5.1 Determinants for content creation and production skills, all countries

	Gender (M/F)	Age	# of online Activities	Friend support	Family support
# of criteria applied to slide	ns	ns	ns	ns	ns
Selecting a copyright free image	M	+	+	ns	ns

Note: ns = not significant; significant at $<.05$ level; + = positive contribution

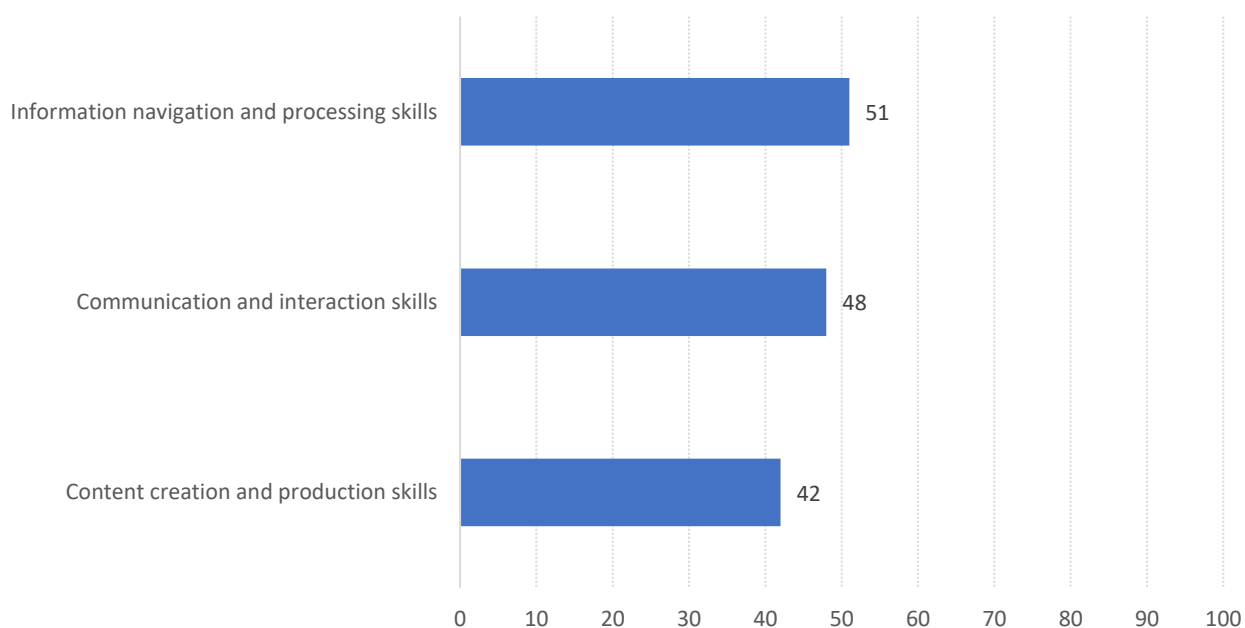
Table 5.1 shows that none of the variables are significant predictors of the number of criteria applied to the slide. For finding and uploading a copyright free image, gender, age, and the number of daily activities are significant contributors. Boys and older children perform better, and the number of daily activities contribute positively.



6 Conclusions

Figure 6.1 presents the overall scores for each of the three skill types considered in the performance tests (these are the total scores taken from figures 3.12, 4.10, and 5.4). This figure illustrates that a substantial number of children from six European countries who participated in the tests are in need for digital skills training (note: samples are not representative of all children in these countries). Furthermore, the possession of all skills is unevenly distributed across countries, at least the countries of which children participated in the performance tests. The general conclusion is that there is much room for improvement when it concerns internet skills of children.

Fig. 6.1 Overall level of Internet skills



Note: Poland and Finland did not provide data on content creation and production skills.

Having sufficient levels of information navigation and processing skills is important for children, as the quality of information offered online is often unreliable. Regrettably this reliability is frequently assumed by them (e.g., Einav et al., 2020; Flanagin & Metzger, 2008). The results raise doubts as to whether children have sufficient skills to benefit from online information provision. Although all tasks were fact-based and the information requested was available online, some tasks proved difficult as almost half of the children failed the searches. Worrying is that less than a third completed all three search tasks successfully, as this is supposed to be one of the more basic skills. It is therefore not surprising that the use of advanced search tools, for example to account for a specific time range, does not come naturally for children. An explanation might be found in the finding that most children take their answers directly from the Google search results page and do not proceed to the actual source of the requested information. Only 27% of all children knew where they found their answer. Additionally, a task on identifying the least reliable website appears to be difficult. A comparable task around ranking a list of search results on reliability shows similar findings. Further analyses revealed that children have a limited understanding of what makes a website trustworthy. Not surprisingly then, most children have difficulty in identifying the intention of social media posts; it was difficult to recognize posts as advertisement, fake news, or phishing scam. This shows their vulnerability to the risks of mis- and disinformation. To conclude, children's skill performance shows they cannot always distinguish between reliable and unreliable information sources and that their information evaluation skills are lacking.



Concerning communication and interaction skills, knowing what is safe to share online and being careful with information received online is an important skill for children to have. The results of the performance tests show that children perform relatively well when it comes to sharing information of others. Still, when looking at children's task performance, around a quarter of the children does not have the skills to identify which of four social media posts is not okay to share with others without asking for permission. How children deal with information received from others is more worrisome, one third of the children, for example, do not consider blocking an unknown person who's sending nasty comments. When interacting with others online, it turns out that the netiquettes for online meetings and conversations are also not self-evident. Most children do not have the skills to choose the right settings in an online meeting or to send a message appropriate to the situation. A similar image emerges from the intimate conversation with friends; more than 40% of the children do not consider name calling as problematic in a group chat. So, children's task performance show that what is appropriate and courteous online behaviour is not obvious.

The ICT environment provides children with opportunities to use and create digital content in meaningful and responsible ways. The performance test results also demonstrate that two thirds of the children do not know how to use an image as template or change the colour of an image to black and white. Only 15% of the children who uploaded a slide were able to correctly apply all four criteria to the slide. To the contrary, many children succeed in uploading and finding a copy-right free image.

When looking at the results concerning variables that contribute to the different skill levels, first it becomes evident that the variables that often play a role in large-scale survey research (self-assessments) appear as less important in the performance tests. The lack of significant results for gender confirms that performance tests are unlike what happens in self-reports where boys tend to overclaim relative to girls (see also Punter, Meelissen & Glas, 2017; Siddiq & Scherer, 2019; van Deursen & Van Diepen, 2013). Age only contributed to the performance on a few tasks. Most survey-based studies on digital skills reveal that older children perform better than younger children (e.g., Haddon et al., 2020; Livingstone & Helsper, 2010; Sonck, Kuiper & De Haan, 2012). In the current studies, a substantial part of the children was aged 15 or 16, limiting the sample's age variety. The results only provide evidence that older children perform relatively better on evaluation, e-mail composition, and identifying problematic chat messages, all aspects that are considered critical components of skills. There are no differences in the more functional skill aspects. Support from friends and family does not seem to play a significant role in the performance of all skills. Prior research reveals that this type of informal support mainly contributes to functional operational skills (or 'button knowledge') (Helsper & van Deursen, 2017; van Deursen, Courtois & van Dijk, 2014). For more advanced information, communication, and content creation skills, formal support such as education is required. Finally, the number of activities performed online is primarily a predictor to functional operational skills; children are not more critical when undertaking more activities online.



Appendix A: Performance test modules and tasks

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 appeared. 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)
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)
<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 (Adobe Stock)

In the next tasks, you are searching for information on climate change for a presentation you and your teammates 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

en.wikipedia.org/wiki/Climate_change

WIKIPEDIA The Free Encyclopedia

Climate change

From Wikipedia, the free encyclopedia

"Global warming" redirects here. For climate trends throughout Earth's history, see *Climate variability and change*. For other uses, see *Climate change (disambiguation)* and *Global warming (disambiguation)*.

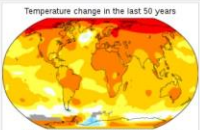
Climate change includes both **global warming** driven by human-induced emissions of greenhouse gases and the resulting large-scale shifts in weather patterns. Though there have been previous periods of climatic change, since the mid-20th century humans have had an unprecedented impact on Earth's climate system and caused change on a global scale.^[2]

The largest driver of warming is the emission of gases that create a greenhouse effect, of which more than 90% are carbon dioxide (CO₂) and methane.^[3] Fossil fuel burning (coal, oil, and natural gas) for energy consumption is the main source of these emissions, with additional contributions from agriculture, deforestation, and manufacturing.^[4] The human cause of climate change is not disputed by any scientific body of national or international standing.^[5] Temperature rise is accelerated or tempered by climate feedbacks, such as loss of sunlight-reflecting snow and ice cover, increased water vapour (a greenhouse gas itself), and changes to land and ocean carbon sinks.

Temperature rise on land is about twice the global average increase, leading to desert expansion and more common heat waves and wildfires.^[6] Temperature rise is also amplified in the Arctic, where it has contributed to melting permafrost, glacial retreat and sea ice loss.^[7] Warmer temperatures are increasing rates of evaporation, causing more intense storms and weather extremes.^[8] Impacts on ecosystems include the relocation or extinction of many species as their environment changes, most immediately in coral reefs, mountains, and the Arctic.^[9] Climate change threatens people with food insecurity, water scarcity, flooding, infectious diseases, extreme heat, economic losses, and displacement. These impacts have led the World Health Organization to call climate change the greatest threat to global health in the 21st century.^[10] Even if efforts to minimise future warming are successful, some effects will continue for centuries, including rising sea levels, rising ocean temperatures, and ocean acidification.^[11]

Many of these impacts are already felt at the current level of warming, which is about 1.2 °C (2.2 °F).^[12]^[13]^[14] The Intergovernmental Panel on Climate Change (IPCC) has issued a series of reports that project significant increases in these impacts as warming continues to 1.5 °C (2.7 °F) and beyond.^[15] Additional warming also increases the risk of triggering critical thresholds called tipping points.^[16] Responding to climate change involves mitigation and adaptation.^[17] Mitigation – limiting climate change – consists of reducing greenhouse gas emissions and removing them from the atmosphere.^[17] Methods include the development and deployment of low-carbon energy sources such as wind and solar, a phase-out of coal, enhanced energy efficiency, reforestation, and forest preservation. Adaptation consists of adjusting to actual or expected climate.^[17] such as through improved coastline protection, better disaster management, assisted colonisation, and the development of more resistant crops. Adaptation alone cannot avert the risk of "severe, widespread and irreversible" impacts.^[18]

Under the 2015 Paris Agreement, nations collectively agreed to keep warming "well under 2.0 °C (3.6 °F)" through mitigation efforts. However, with pledges made under the Agreement, global warming would still reach about 2.8 °C (5.0 °F) by the end of the century.^[19] Limiting warming to 1.5 °C (2.7 °F) would require halving



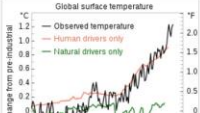
Temperature change in the last 50 years

2011-2020 average vs 1951-1980 baseline

-0.5 -0.2 +0.2 +0.5 +1.0 +2.0 +4.0 °C

-0.9 -0.4 +0.4 +0.9 +1.8 +3.6 +7.2 °F

Average surface air temperatures from 2011 to 2020 compared to a baseline average from 1951 to 1980 (Source: NASA)



Global surface temperature

1.2 1.0 0.8 0.6 0.4 0.2 °C

2.0 1.5 1.0 0.5 0 °F

— Observed temperature

— Human drivers only

— Natural drivers only

Year (from 1880)

Website 2

ec.europa.eu/clima/index_en

An official website of the European Union

English EN

Search

European Commission > Energy, Climate change, Environment >

Climate Action

Home About us Climate change EU Action Citizens News & Your Voice Contracts & Grants

Policies

EU climate action and the European Green Deal

Climate strategies & targets

EU Emissions Trading System (EU ETS)

Effort sharing: Member States' emission targets

Forests and agriculture

International action on climate change

Website 3

local.gov.uk/our-support/climate-change

Local Government Association

Log in


Search the site

About COVID-19 Our support Case studies Parliament Topics Publications Events

Home > Our support

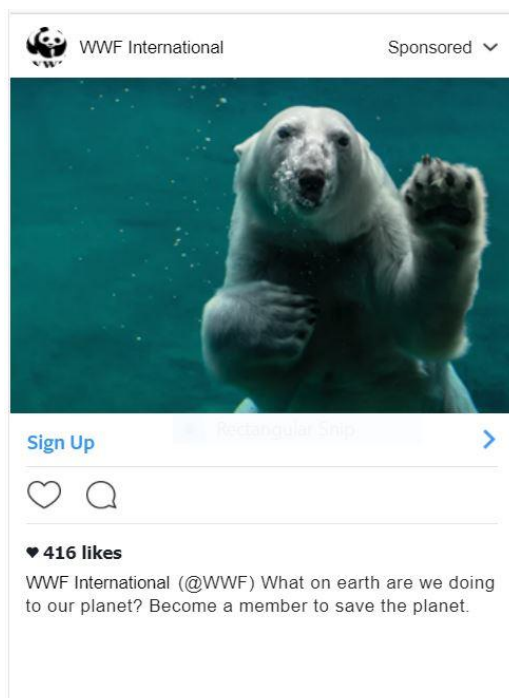
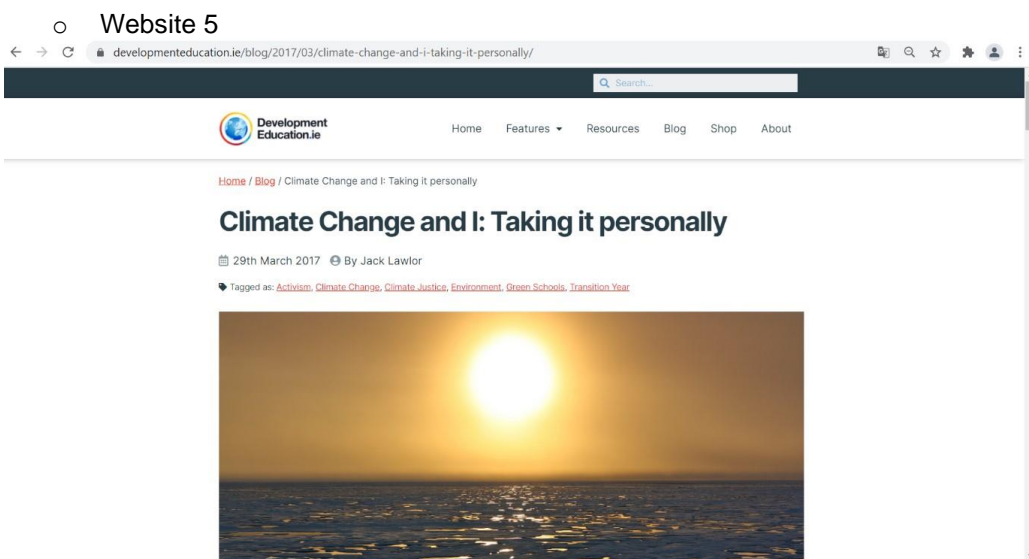
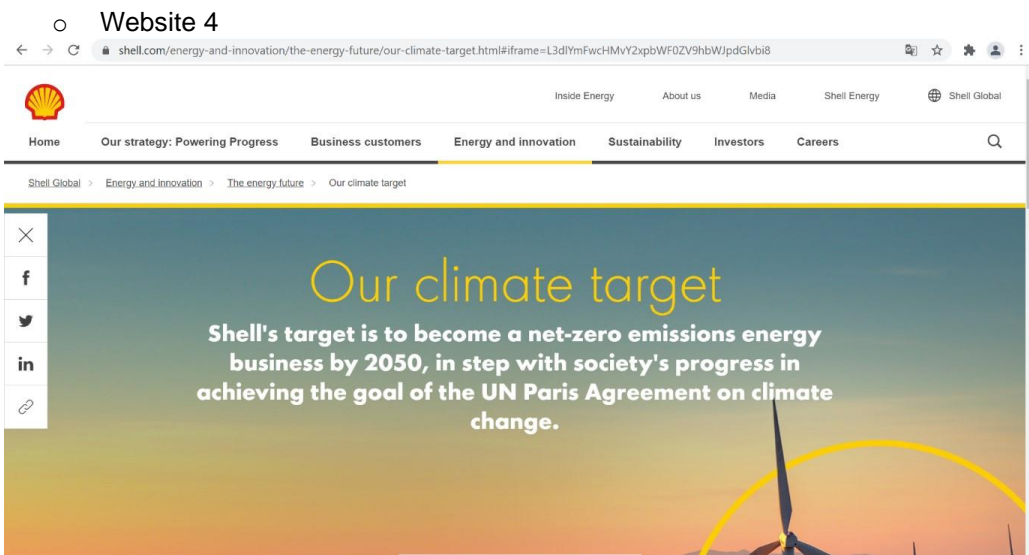
Climate change hub

Alongside the majority of councils, we have declared a climate emergency. As part of our sector-led improvement work, the LGA offers a wide range of support to help councils address the issues of climate change and environmental sustainability.



Privacy settings





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:

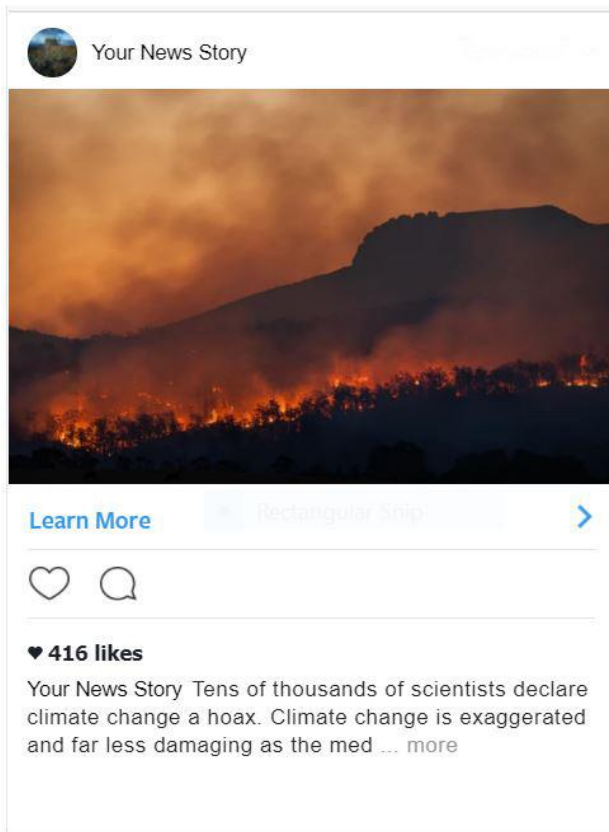
Can you tell what type of post it is?

Please provide one answer.

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



Post 2:

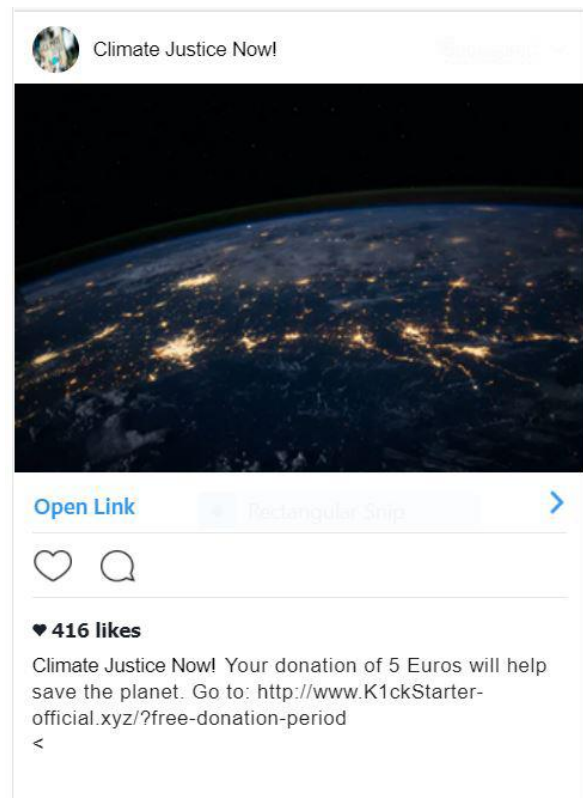


A Facebook post from a page named "Your News Story". The profile picture is a globe. The post features a photograph of a wildfire with thick orange and black smoke rising from a dark landscape. Below the image is a blue button labeled "Learn More" and a grey button labeled "Rectangular Snip" with a right-pointing arrow. Underneath are icons for a heart and a speech bubble. The text below reads "♥ 416 likes" followed by the start of a text snippet: "Your News Story Tens of thousands of scientists declare climate change a hoax. Climate change is exaggerated and far less damaging as the med ... more".

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:



A Facebook post from a page named "Climate Justice Now!". The profile picture is a globe. The post features a photograph of Earth from space, showing city lights at night. Below the image is a blue button labeled "Open Link" and a grey button labeled "Rectangular Snip" with a right-pointing arrow. Underneath are icons for a heart and a speech bubble. The text below reads "♥ 416 likes" followed by the start of a text snippet: "Climate Justice Now! Your donation of 5 Euros will help save the planet. Go to: http://www.K1ckStarter-official.xyz/?free-donation-period <".

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 copy right).

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?

If you have anything that you would like to tell us about them, please write it down 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 a 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:



Sophie



Liked by Lucas and 20 others

Sophie

OMG leaving the house for the first time since#lockdown
#scared#excited#newnormal

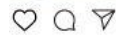
...more

View all 16 comments

Post 4:



Sophie



Liked by Lucas and 20 others

Sophie

Found this. Luv you so much! Best mum ever ❤️❤️❤️

...more

Post 3:



Sophie



Liked by Lucas and 20 others

Sophie

reading about#climatechange#sad#worried#actionneeded 😞

...more

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 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 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 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 the 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 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.

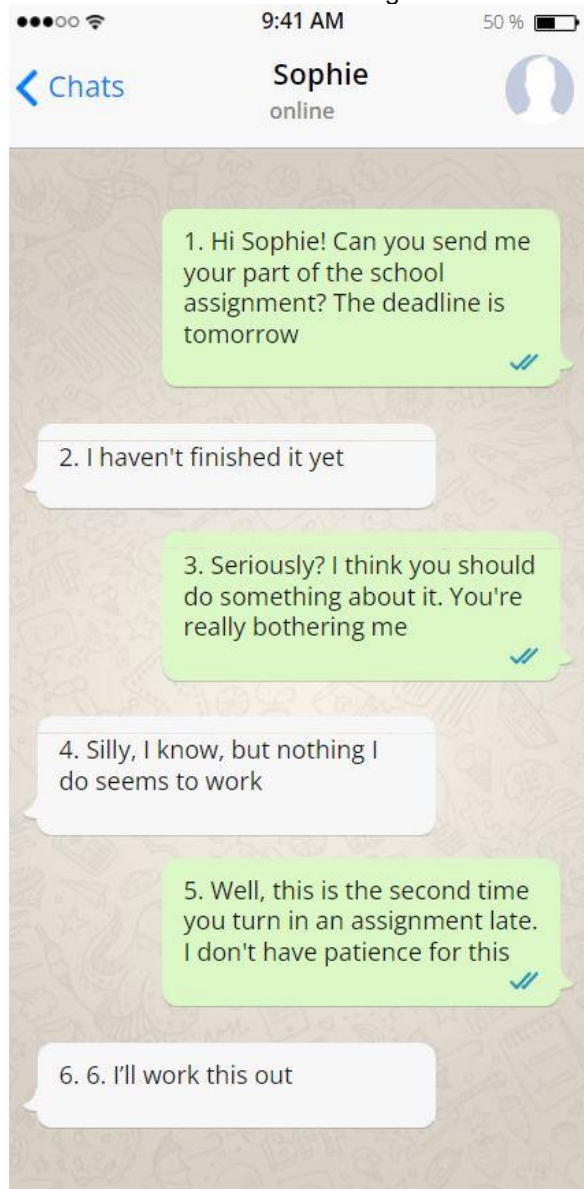
Which of the following would you do if this kind of conversation happened in a group that you belonged to?

Please choose **all** that apply:

- Ignore it
- Throw your friend Thomas out of the group
- Put a message in the chat asking Thomas to not say such things
- Tell Lucas that that's 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:



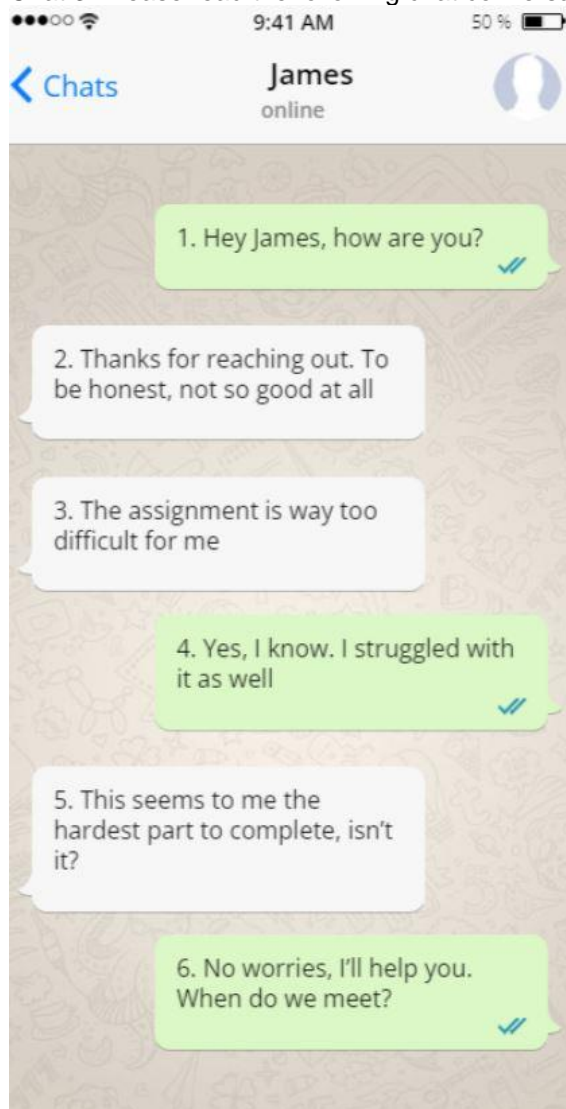
Do you think any of the six messages (see numbers in chat) are problematic?

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



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