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van Oosten, J.M.F.; Korderijnk, R.C.; Piotrowski, J.; de Vries, D.A.; de Vreese, C.H.

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DigIQ2.0 Report

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Digital Competence of Dutch people based on skills, knowledge and performance

Annemarie van Oosten[1], Roos Korderijnk[1], Jessica Taylor Piotrowski[1], Dian de Vries[2], & Claes H. de Vreese[1]

[1] *Amsterdam School of Communication Research, University of Amsterdam*
[2] *Utrecht University of Applied Sciences*

Contents

Summary

- The DigIQ2.0 is an extension of the DigIQ
- The DigIQ2.0 measures digital skills in 11 areas, of which transactional skills and genAI skills are new compared to the DigIQ:
  1. Strategic information skills (being able to find information online)
  2. Critical information skills (being able to critically assess online information)
  3. Netiquette (being able to interact politely with others online)
  4. Creative digital skills (being able to create or modify digital products)
  5. Online security and control over information and devices (protecting your digital data and devices
  6. Online health and well-being (protecting your health from negative consequences of internet use)
  7. Sustainable/green digital skills (being able to use digital devices in a sustainable way)
  8. Digital problem solving (knowing how to get help with online activities)
  9. AI skills (recognizing and dealing with artificial intelligence)
  10. GenAI skills (recognizing and dealing with generative artificial intelligence)
  11. Transactional skills (being able to use digital technology to arrange civil affairs, healthcare, and (financial) transactions).
- In addition to digital skills and knowledge items, performance and behavioral measurements have also been added for the 11 dimensions for the DigIQ2.0.
- Based on data from 2,417 Dutch people aged between 10 and 94, we drew the following conclusions:
  1. Dutch people have confidence in their own digital skills, but do not always appear competent when looking at knowledge and performance and behavioral measurements.
  2. The Dutch have little confidence in their (gen)AI skills, which is consistent with their scores on knowledge and performance items.
  3. Differences among Dutch people can be distinguished based on age and education level, not on migration background. Children, the elderly, people with low education levels, people with low literacy, and the unemployed seem particularly vulnerable to poor digital skills.
  4. The Dutch have varying degrees of online security; while online deception is readily recognized, the Dutch don't seem to know how to check whether a webshop is safe, and strategies for keeping accounts secure aren't implemented by everyone.
  5. The Dutch can keep up with the digital society, but we see important areas of concern for sustainable skills and knowledge and finding help with digital problems.
- This first round of data will be used to inform a dashboard that provides real-time insights for policymakers. Data from subsequent rounds of data collection will be added to this dashboard.

1 Background

This report covers the first round of a multi-year measurement of the digital competence of Dutch people aged 10 and older. Through six surveys at six time points with six different samples and one longitudinal sample, we aim to gain a clear picture of the current state of digital competence among the Dutch, whether it is changing, and which groups of people are most vulnerable online. We focus specifically on digital skills and knowledge, such as the skills and knowledge needed to use online media and digital technology safely and effectively, as well as the performance of these skills through tests and behavioral measurements.

This project is an extension of the DigCom project that was carried out in 2021-2023 and resulted in the measurement instrument DigIQ (Principal Investigator: Piotrowski; now published as de Vries et al., 2025[1]). More information about how the DigIQ was developed and tested can be found in the DIGCOM report from November 2021[2] and May 2022[3]. The DigIQ has been expanded (DigIQ2.0) to include performance and behavioral measurements, and has added "genAI" skills and "transactional" skills to the digital skills.

Similar to the previous DIGCom project, the current project focuses on all Dutch people aged ten and older, rather than focusing solely on a specific group. This allows us to compare groups and advise on which groups need support with which digital skills. By conducting the research not only online but also by sending questionnaires by postal mail to people in neighborhoods with many people with a migrant background and lower education level, this study also included people who are often underrepresented in other studies. The project was made possible by a grant from the Ministry of the Interior and Kingdom Relations (Ministerie van BZK) (Principal Investigator: Piotrowski).

1.1 Project CID, the follow-up to DIGCOM

Project DIGCOM, a grant awarded to the University of Amsterdam, developed a successful online tool—the DigIQ—to measure digital competence in a psychometrically valid way for the Dutch population. This was a crucial first step, as this project revealed the nine dimensions by which digital competence should be measured. It also revealed the various strengths and challenges in digital competence for specific groups of Dutch people based on age and education level.

1 de Vries, Dian and Piotrowski, Jessica Taylor and de Vreese, Claes H (2025). Developing the Digiq: A Measure of Digital Competence. Available at SSRN: https://ssrn.com/abstract=4835479 or http://dx.doi.org/10.2139/ssrn.4835479

2 de Vries, D. A., Piotrowski, J., & de Vreese, C.H. (2021). Samenvatting Resultaten Onderzoek Digitale Competenties (DIGCOM) November 2021. https://osf.io/g8evc

3 de Vries, D. A., Piotrowski, J. T., & de Vreese, C. H. (2022). Digital Competence Research Results (DIGCOM) May 2022. https://osf.io/db3e6/

However, the DIGCOM project also made clear that several crucial next steps are needed if we want to support the digital competence of Dutch citizens—especially in a time of constant change in the digital environment. In particular, long-term, population-based monitoring is crucial for identifying key areas of concern and staying up-to-date with technological developments, such as those in generative AI. Furthermore, the data from this monitoring must be readily available to policymakers and practitioners, allowing for rapid responses to concerning trends. Project CID (Competency Insight Dashboard) is designed to achieve these goals.

1.2 Project CID round 1: developing the DigIQ2.0

This report describes the initial data collection of Project CID. The guiding focus of this initial data collection is the development of a 2.0 version of the DigIQ (i.e., DigIQ v2.0), which adds two dimensions to the existing nine dimensions of the DigIQ. First, while the DigIQ included questions on AI skills and knowledge, it lacked questions specifically on generative AI, which only gained popularity during the last DigIQ survey. Generative AI is playing an increasingly important role in citizens' daily activities, and skills in this area should therefore be included in digital competence assessments. Second, the DigIQ did not include a measurement of the digital skills and knowledge needed to participate in today's digitalized society, in other words, "transactional" digital skills and knowledge. Participating in Dutch society requires increasing digital competence, as tasks such as buying public transport tickets, applying for government benefits and choosing a healthcare provider, so-called 'transactional behavior', are increasingly managed online through digital tools.[4]. It is therefore more important than ever to have the means to use digital technologies; those who lack that capacity can be excluded from participating in society and can also be deprived of resources and opportunities, creating or reinforcing societal inequalities.[5,6].

1.3 Performance and behavioral measurements

In addition to adding measures of genAI and transactional skills and knowledge, performance and behavioral measures have been added to the DigIQ. Measuring digital skills through self-assessments (i.e., "I know how to check if a website is trustworthy"), as is the case in the DigIQ, can be criticized for social desirability bias[7] or under- and overestimations by participants[8,9]. The DigIQ2.0 has therefore been expanded to include performance and behavioral measurements for all digital competency dimensions. Some digital skills cannot be captured well in a one-off performance test and concern more general behavior that people do or do not perform. For these skills, we specifically asked about performing certain behavior. These items can be used to assess the extent to which participants can demonstrate the digital competencies they report on.

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4 Goedhart, N. S., Verdonk, P., & Dedding, C. (2022). "Never good enough." A situated understanding of the impact of digitalization on citizens living in a low socioeconomic position. *Policy & Internet, 14*(4), 824-844.

5 Helsper, E. (2008). Digital inclusion: *An analysis of social disadvantage and the information society*. Department for Communities; Local Government.

6 Van Dijk, J. (2017). Digital divide: Impact of access. *The international encyclopedia of media effects, 1*, 1–11.

7 Gnambs, T., & Kaspar, K. (2017). Socially Desirable Responding in Web-Based Questionnaires: A Meta-Analytic Review of the Candor Hypothesis. *Assessment, 24*(6), 746–762

8 Kim, Y.-H., Kwon, H., Lee, J., & Chiu, C.-Y. (2016). Why Do People Overestimate or Underestimate Their Abilities? A Cross-Culturally Valid Model of Cognitive and Motivational Processes in Self-Assessment Biases. *Journal of Cross-Cultural Psychology, 47*(9), 1201–1216

9 Mahmood, K. (2016). Do People Overestimate Their Information Literacy Skills? A Systematic Review of Empirical Evidence on the Dunning-Kruger Effect. *Communications in Information Literacy, 10*(2), 199.

1.4 The DigIQ2.0

The DigIQ2.0 consists of DigIQ-Skills, DigIQ-Knowledge and DigIQ-Performance.

DigIQ-Skills measures how skilled someone considers themselves in eleven types of digital skills, with between 2 and 7 questions per category:

1. Strategic information skills (being able to find information online)
2. Critical information skills (being able to critically assess online information)
3. Netiquette (being able to interact politely with others online)
4. Creative digital skills (being able to create or modify digital products)
5. Online security and control over information and devices (protecting your digital data and devices)
6. Online health and well-being (protecting your health from negative consequences of internet use)
7. Sustainable/green digital skills (being able to use digital devices in a sustainable way)
8. Digital problem solving (knowing how to get help with online activities)
9. AI skills (recognizing and dealing with artificial intelligence)
10. GenAI (Generative Artificial Intelligence: Recognizing and Dealing with It)
11. Transactional skills (being able to use digital technology in arranging civil affairs, care and transactions).

DigIQ-Knowledge tests digital knowledge with a unidimensional set of 31 questions, which participants can answer correctly or incorrectly.

DigIQ Performance tests the performance or behavior of Dutch people on each of the 11 skills, with 1 to 3 tests or behavioral measurements per skill.

A complete overview of the DigIQ2.0 questions can be found at https://osf.io/dfvqb.
The DigIQ2.0 is free to use by anyone, as long as a source is cited.

In addition to questions about digital competencies, we also asked questions about:

- Background characteristics, such as age, gender, education level, migration background and literacy
- Questions about using the internet and digital devices and receiving and giving help with this.

2 Method

2.1 Developing the second version of DigIQ

Between May and November 2024, we developed a second version of the DigIQ: DigIQ2.0. The questions within the two new competencies (generative AI skills and transactional skills) and the performance and behavioral measurements were developed based on existing scientific and non-scientific literature and interviews with experts in the field. The revised questionnaire was tested for comprehensibility through cognitive interviews with six people of different ages, education levels, professions and internet experience. The Dutch foundation for low literacy ('ABC') also helped to improve the questionnaire's readability.

2.2 Sampling

Project CID aims to map the digital competencies of the entire Dutch population. A common and efficient way to conduct research is to administer a questionnaire to an online panel. However, if we were to distribute the survey only to members of an online panel, we might miss a portion of the population in our sample. In that case, the results might not accurately reflect the digital competencies of the entire Dutch population. Namely, online panel participants are more likely to be highly educated than the average Dutch person and are less likely to have a migration background. Moreover, only people who use the internet participate in an online panel.

In addition to research among the research agency's online panel, we also sent a paper questionnaire by postal mail to addresses in 1) neighborhoods where most people with a lower educational level live and 2) neighborhoods where most people with a migration background live. However, such an address sample (BAG) is very expensive. In this study, we therefore opted for a combination of an address sample (261 participants) and a sample from an online panel (2,156 participants). This approach also ensured that people who are not or rarely online participated, as well as more people with a migration background and a lower educational level, than in studies that only use online panels.

> ***"Project CID aims to map the digital competencies of the entire Dutch population."***

Data collection took place between November 26, 2024, and January 5, 2025. Participants could complete the questionnaire in Dutch or English. The online sample had the option to do this via a smartphone, computer, or tablet. The BAG sample could complete the questionnaire on paper or via a QR code in their letter on a smartphone, computer, or tablet. The questionnaire was completed by 2,428 participants. 11 participants were removed because they did not give consent or did not pass the quality checks. We analyzed the completed questionnaires of 2,417 participants, of which 2,156 via the online panel and 261 via the BAG sample.

As shown in Table 1, the sample deviates from the MOA Gold Standard (2024), based on micro-files from Statistics Netherlands (CBS), in terms of gender, age, education level, and migration background. Weights have been applied to the results to compensate for these differences. Education level is divided based on highest completed education: Primary education, pre-vocational secondary education (VMBO) and MBO-1 ('low'), senior general secondary education (HAVO), pre-university education (VWO), MBO-2-4 ('middle'), higher professional education (HBO), university ('high').

Table 1. Demographic characteristics of the sample

	sample %	MOA Gold Standard %
Gender		
Male	43	50
Female	57	50
Age		
10-15	9	7
16-25	5	14
26-35	26	15
36-45	11	13
46-55	9	15
56-65	16	15
66+	22	20
Education level		
Low	14	25
Middle	31	38
High	55	38
Migration background	11	27

Most of the participants used computers (84%) and smartphones (92.3%) often or very often, but there were also participants who (almost) never used a computer (6%) or smartphone (3%). 93% of the participants indicated that they never or almost never needed help with reading. Most participants therefore seem to have a lot of experience with digital media and to be literate. In order to identify which groups are the most vulnerable with regard to digital competence, we present the results for digital skills and knowledge broken down by different groups (age, education level and migration background).

2.3 Reliability and validity

According to the results of this first round, the new questions about generative AI skills and transactional skills fit well with the other skills questions, and the digital skills questions can indeed best be divided into eleven categories. The added knowledge items (for example, about genAI and digital transactions) form a single knowledge scale with the other items. The performance measures will be further tested for validity and test-retest reliability using data from the next data collection round. The data from round 1 and all upcoming rounds will be published so that other researchers can also use the data. Of course, we will ensure that the data cannot be traced back to individuals.

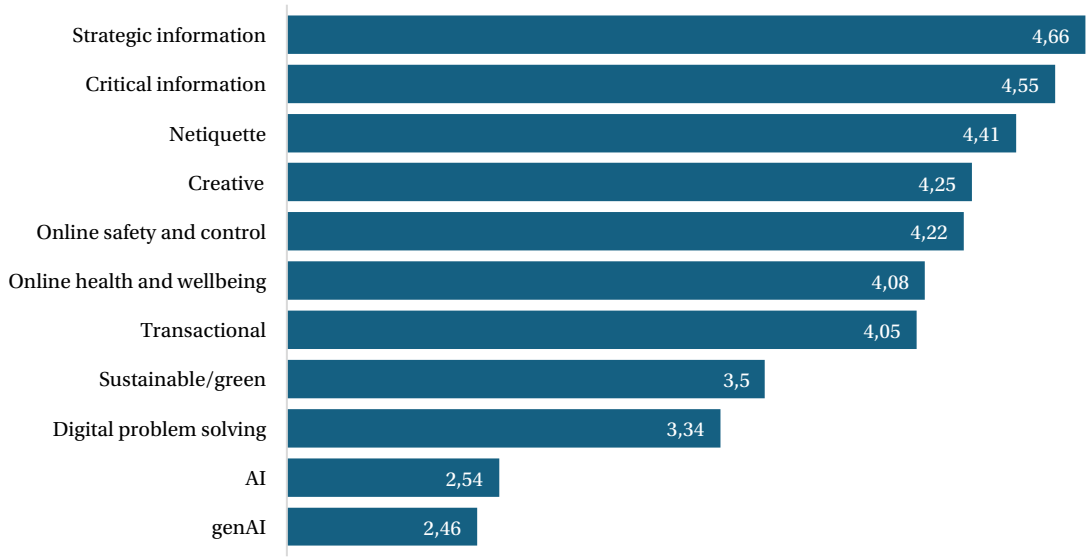
3 Key Findings

3.1 Digital trust is high, but not (always) equal to competence

3.1.1 Confidence in digital skills

Our findings show that the Dutch generally score high on confidence in their digital skills. On average, the Dutch have the most confidence in their strategic information skills (see Figure 1). This means they can generally find what they're looking for online. On average, the Dutch also rate their skills highly in critically assessing online information and interacting socially with others online (netiquette skills).

Figure 1. Skills scores per dimension



3.1.2 Agreement between confidence in skills and knowledge and performance

Comparing self-reported skills with knowledge reveals some similarities. On average, respondents answered 21 of the 31 knowledge questions correctly. However, Dutch people's confidence in their digital skills does not always correspond with their knowledge and performance in the competency areas, or it appears to apply to only part of their online behavior. For example, the ability to search for information online (*strategic information skills*) appears to be limited to basic skills. Almost all Dutch people (96% of the sample) know how to query Google using search terms. However, this is not the case for more advanced strategic skills. For example, in the performance tests, we also asked respondents if they could indicate how to ensure that only Dutch sources are shown in Google. Only 38% of respondents were able to correctly indicate this under "tools." This percentage was higher among (young) adults (around 50%) and lower among those aged 66 and over (12%). Also, more highly educated people (48%) are able to use these advanced tools compared to those with low levels of education (14%).

3.1.3 Discrepancies in online well-being and netiquette skills

In the areas of online well-being and netiquette, the discrepancies between self-reported skills and actual behavior or performance are large. Regarding netiquette skills, the Dutch give an average score of 4.6 (on a scale of 1-5) for the statement "I know which things **not** to share online." However, only 37% of respondents correctly indicate which photos require permission to be shared online (namely, photos where someone is recognizable). This percentage is virtually the same for Dutch people of different ages and education levels.

While people rate themselves relatively high in online health and well-being on items like "I know how to control how much time I spend on the internet" and "I know how to make sure my phone does not distract me" (4 and 4.1 on a 1-5 scale, respectively), only 56% of respondents actually used one or more specific strategies to reduce their digital media use. Nearly half of Dutch people (42%) turn off notifications, but other strategies to limit digital media use are only used by a small group of Dutch people. For example, only a few Dutch people (11%) use digital tools like apps to help them monitor or limit their screen time. Similarly, only a few Dutch people (8%) have rules at home about limiting digital media use.

The fact that people use few strategies to limit their digital media use could mean that the Dutch indeed experience few problems in the area of online health and well-being (which can be concluded from their high scores in confidence in skills in this area), although this seems to contradict findings from other research[10,11,12]. It is also possible that the Dutch do not fully grasp that their online health is actually at risk, or that they simply are not able to implement strategies to reduce screen time. This cannot be inferred from the current results, but this is an important point to consider, especially given people's ambivalent and constantly changing relationship with digital media and the need for digital disconnection.[13]

3.1.4 You don't know what you don't know

The discrepancy between self-reported knowledge and actual performance or behavior could indicate that the Dutch are often unaware of all that is happening and possible online. While they believe they have digital skills in many areas, this is limited to a few online activities within a competency. It is also possible that the Dutch tend to overestimate their own abilities, a phenomenon known as the Dunning-Kruger effect.[14] This can lead to a lack of awareness of their own shortcomings and blind spots in their digital skills.

10 https://npo.nl/npo3/3vraagt/1-op-de-3-jongeren-zegt-verslaafd-te-zijn-aan-sociale-media-vrouwen-vaker-dan-mannen

11 https://www.metronieuws.nl/in-het-nieuws/binnenland/2025/04/social-mediagebruik-media-nederlanders/

12 https://www.trimbos.nl/actueel/nieuws/de-impact-van-sociale-media-op-het-welzijn-is-niet-voor-alle-jongeren-hetzelfde/

13 Nguyen, M. H. (2023). "Maybe I should get rid of it for a while…": Examining motivations and challenges for social media disconnection. *The Communication Review*, *26*(2), 125-150. https://doi.org/10.1080/10714421.2023.2195795

14 Mahmood, K. (2016). Do people overestimate their information literacy skills? A systematic review of empirical evidence on the Dunning-Kruger effect. *Communications in Information Literacy, 10*, 199-213. https://doi.org/10.15760/comminfolit.2016.10.2.24

Points of interest:

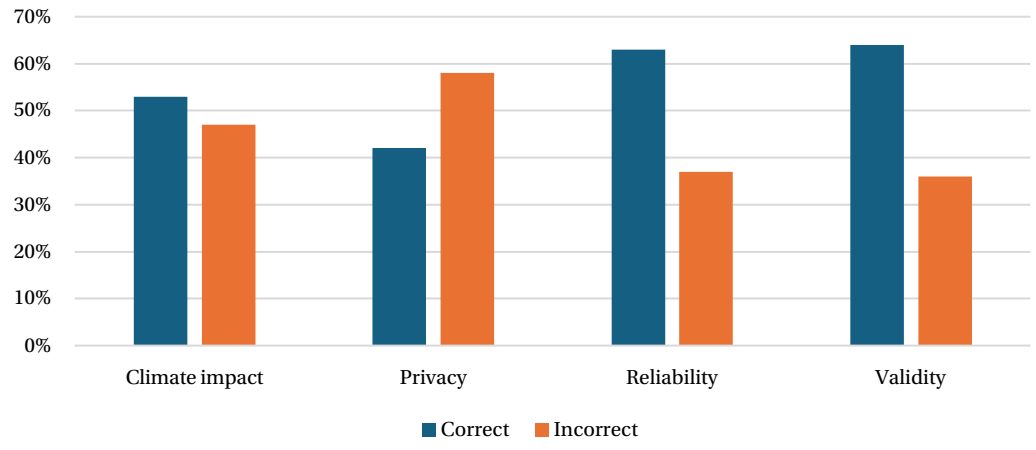
- People generally feel digitally skilled, and this largely corresponds with the knowledge they have.
- For some skills, such as online health and well-being, or netiquette, there are discrepancies between high scores on trust and low scores on performance and behavior.
- These findings may indicate that Dutch people have 'blind spots' when it comes to (some) digital skills and are not aware of what is possible online and where they actually lack skills.

3.2 Lack of (gen)AI competence

3.2.1 Limited correct knowledge about (gen)AI

When it comes to (gen)AI skills, the Dutch generally assess themselves realistically: they indicate they have little confidence in their skills, and scores on the knowledge and performance measures show this to be justified. For example, few Dutch people have accurate knowledge about the impact of genAI on the climate (53%) or the privacy risks of information you provide to genAI (42%). The statement "Because GenAI, like ChatGPT, searches many websites online, the information it provides is reliable" was correctly answered as "false" by 63%, and an item about the validity of genAI ("GenAI, like ChatGPT, can produce different results when the same question is asked multiple times") was correctly answered as "true" by 64% (see Figure 2). This shows that while the majority of Dutch people do have knowledge about the reliability of genAI, there is still a large group who lacks sufficient knowledge.

Figure 2. Percentage correct and incorrect knowledge about genAI

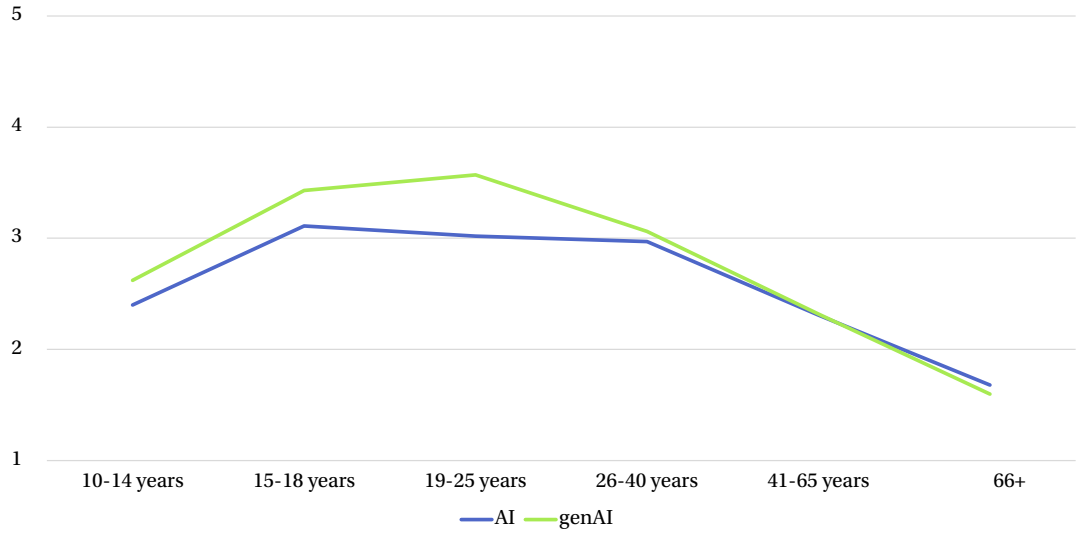


These findings are concerning given the rapid rise of this digital technology, and its popularity and widespread use, especially among young people.[15,16]. GenAI, such as ChatGPT, is also used for sharing personal and sensitive information.[17], but this seems to be happening without sufficient knowledge about what happens to the information you share with genAI, or the reliability of the information it produces. People also seem to lack the understanding that the use of online media, and especially the enormous computing power required for generative artificial intelligence, has a negative impact on the climate.

3.2.2 Large differences in age and education level for (gen)AI competence

We see large differences between age groups in skills and knowledge in the field of (gen)AI: while teenagers and young adults consider themselves (reasonably) skilled in (gen)AI, this confidence is low for other age groups, and especially for people aged 66 and over (see Figure 3).

Figure 3. Trust in (gen)AI skills per age group



Children and older people also score lower than late teens and (young) adults on knowledge of (gen)AI (see Figures 4 and 5), particularly in the area of privacy ("Someone else can also access the information you enter into genAI, such as ChatGPT"), validity ("GenAI, such as ChatGPT, may give different results when the same question is asked multiple times"), reliability ("Because GenAI, such as ChatGPT, searches many websites on the internet, the information it provides is reliable", *false statement*), and personalization through AI ("Websites and apps for news and entertainment show the same content to everyone", *false statement*). People with a low level of education also mainly answer these statements incorrectly (see Figures 6 and 7).

15 https://www.nu.nl/tech/6326768/chatgpt-is-populair-onder-jongvolwassenen-bijna-de-helft-gebruikt-de-ai-chatbot.html

16 https://www.cbs.nl/nl-nl/nieuws/2024/36/bijna-kwart-nederlanders-gebruikt-kunstmatige-intelligentie-zoals-chatgpt

17 https://eenvandaag.avrotros.nl/opiniepanel/uitslagen/1-op-de-10-jongeren-chat-met-ai-over-mentale-klachten-maar-meesten-zijn-sceptisch-robot-kent-geen-empathie-160263

Figure 4: Percentage correctly answered items about Al per age

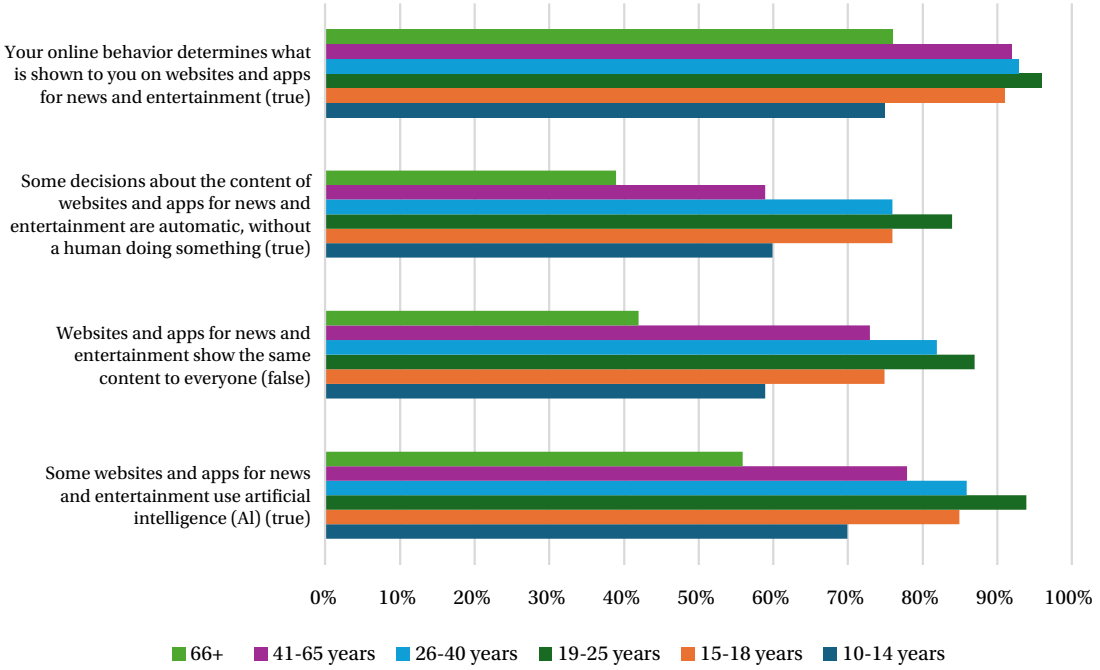


Figure 5: Percentage correctly answered items about genAl per age

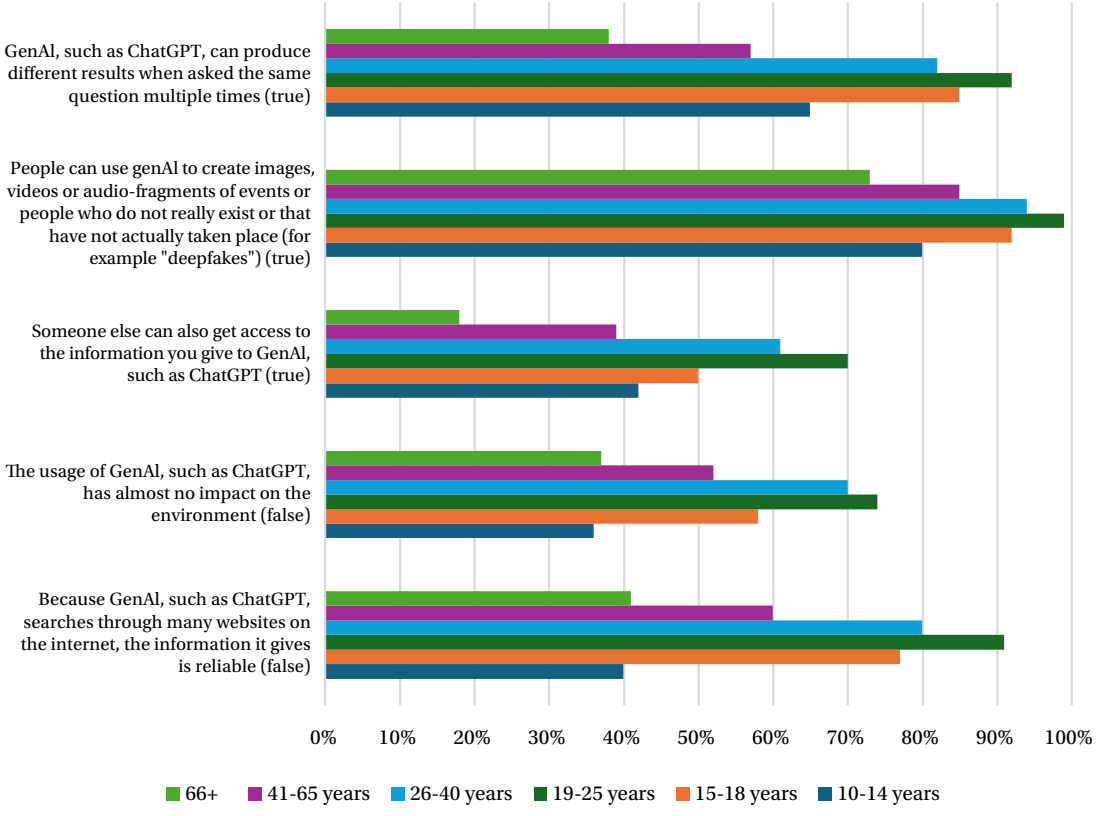


Figure 6: Percentage correctly answered items about AI per education level

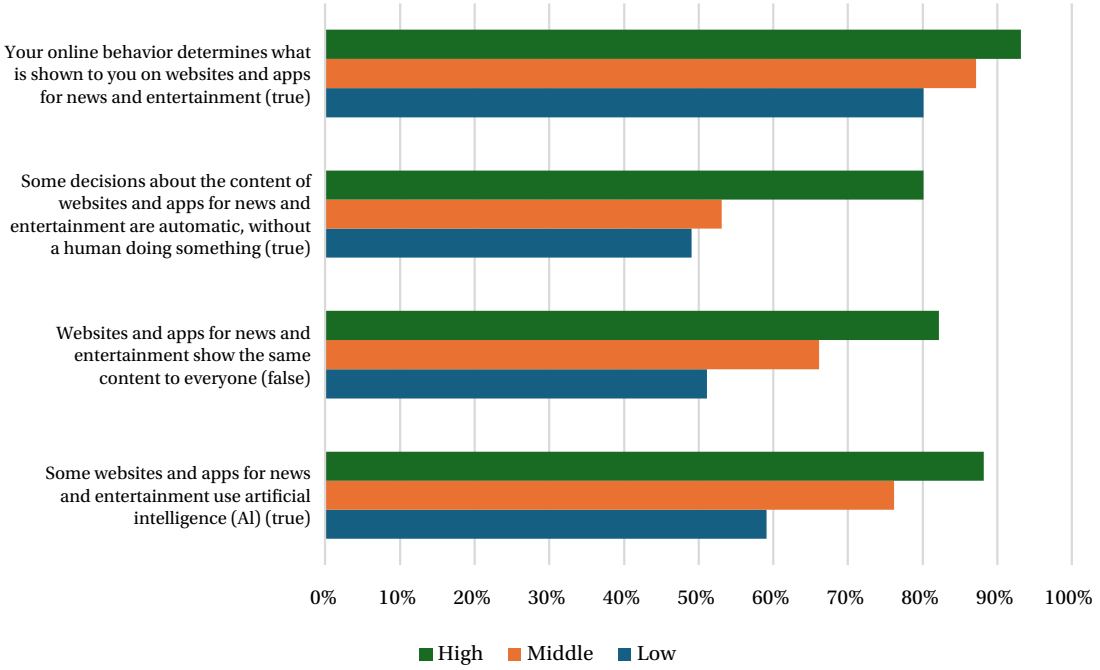
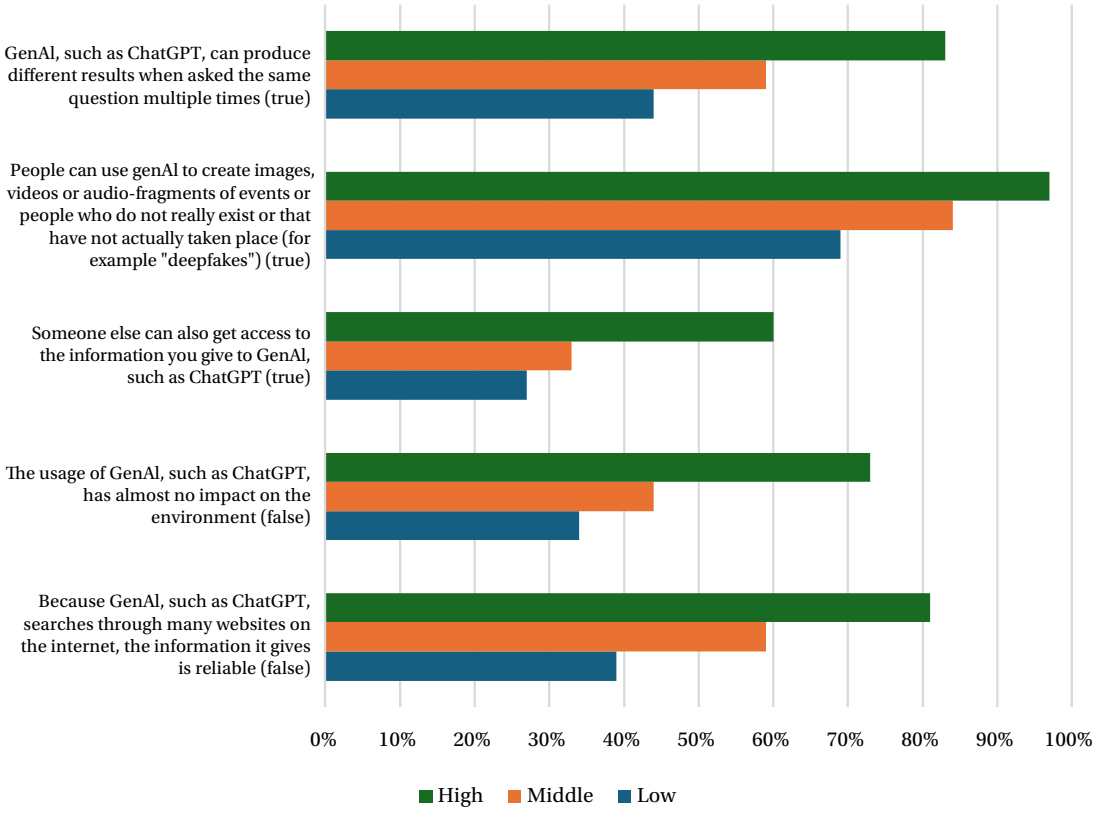


Figure 7: Percentage correctly answered items about genAI per education level



3.2.3 Performance measurements for (gen)AI

When measuring AI skills, it appears that about 2/3 of the Dutch know that AI is used to personalize content for social media and search engines like Google. However, this percentage is already lower for streaming services like Netflix, and only 20% of Dutch people know that news sites like NOS also use AI. About half of Dutch people know that online stores like Bol.com and Albert Heijn also use AI. Furthermore, 7% thought AI was used in DigID and therefore gave an incorrect answer. Dutch people with a low educational level and those aged 66 and over seemed to have little awareness of the use of AI in all apps to personalize content for the user.

To measure whether the Dutch can *recognize* genAI, participants were asked to indicate which of four photos (3 of which were generated by genAI) was generated by AI. A small majority (55%) were able to correctly identify this. This percentage was higher among (young) adults (80% among 19-25 year olds, and 71% among 26-40 year olds), slightly higher among 15-18 year olds (59%), and lower among 10-14 year olds (42%), 41-65 year olds (40%), and 66+ year olds (25%) (see Figure 8). Among low-educated Dutch people, 29% were able to correctly identify photos created by genAI, compared to 42% among the middle-educated group and 69% among highly educated Dutch people (see Figure 9).

Figure 8: Percentage that correctly recognises Al generated pictures, per age group

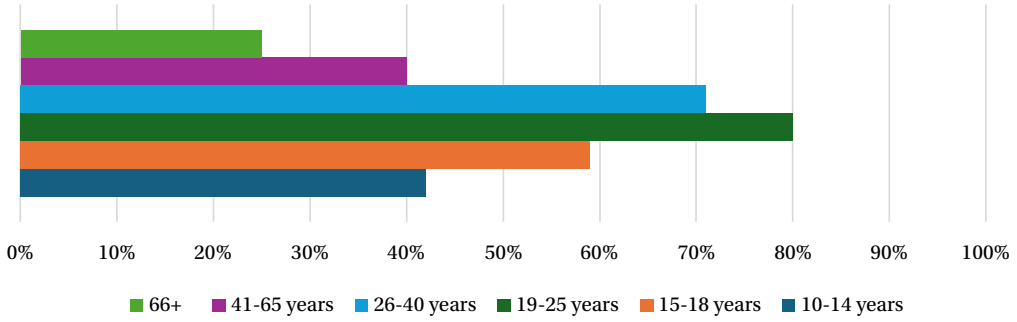
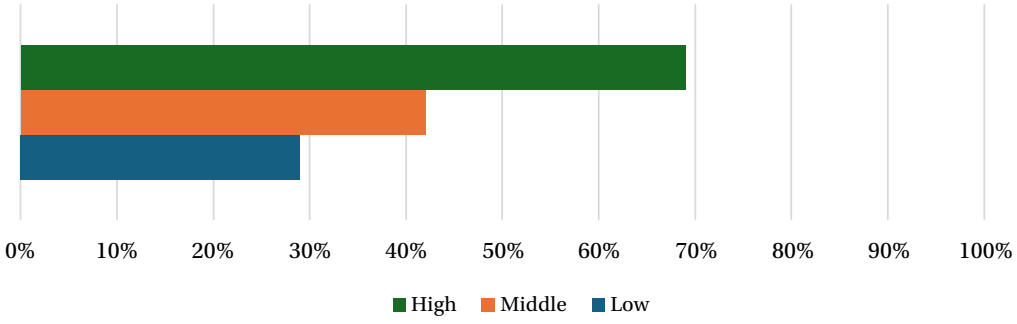


Figure 9: Percentage that correctly recognises Al generated pictures, per education level



To test whether the Dutch can *use* genAI, we asked participants to create a prompt for ChatGPT, asking for a recipe with specific characteristics. A large majority of respondents were able to complete a correct prompt, but a large proportion (52%) of these answers remained at the level of a search query you would also enter in Google. There were only small differences in age and education level, although older people performed worse than younger age groups. A small group (10%) took advantage of genAI's advantages by being as specific and detailed as possible in their prompts, or otherwise indicated in their open-ended answer that they were familiar with genAI prompts. These types of prompts also showed the largest age differences, with about one-fifth of (young) adults and highly educated individuals able to provide a good, specific prompt, but children, older people, and those with low levels of education were barely able to do so (see Figures 10 and 11).

Figure 10: Skill in making a genAl prompt, per age group

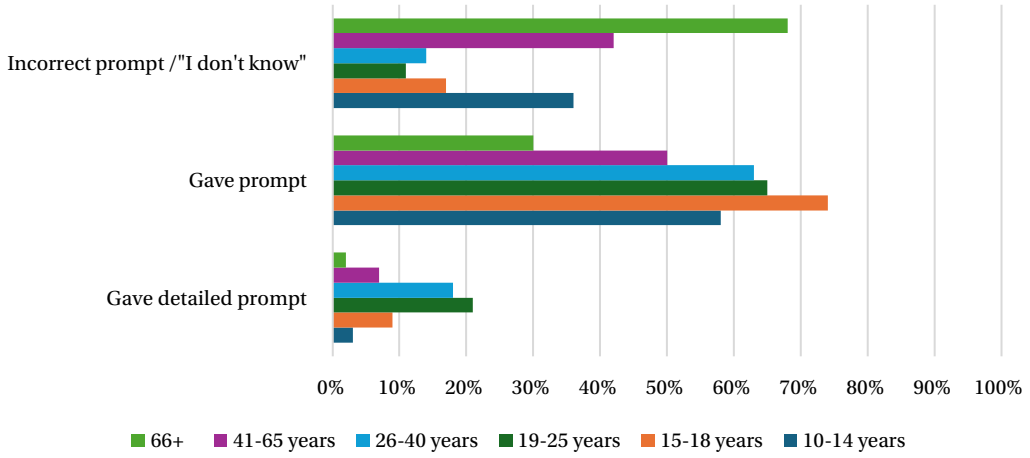
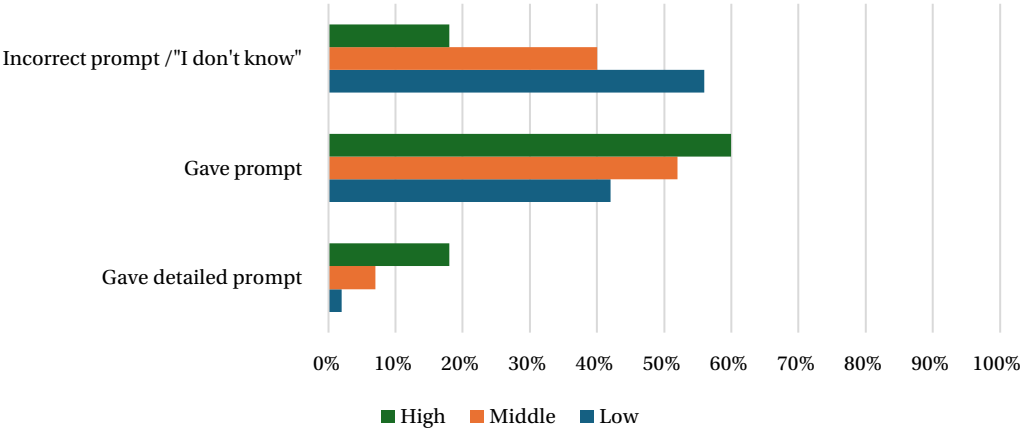


Figure 11: Skill in making a genAl prompt, per education level



Points of interest:

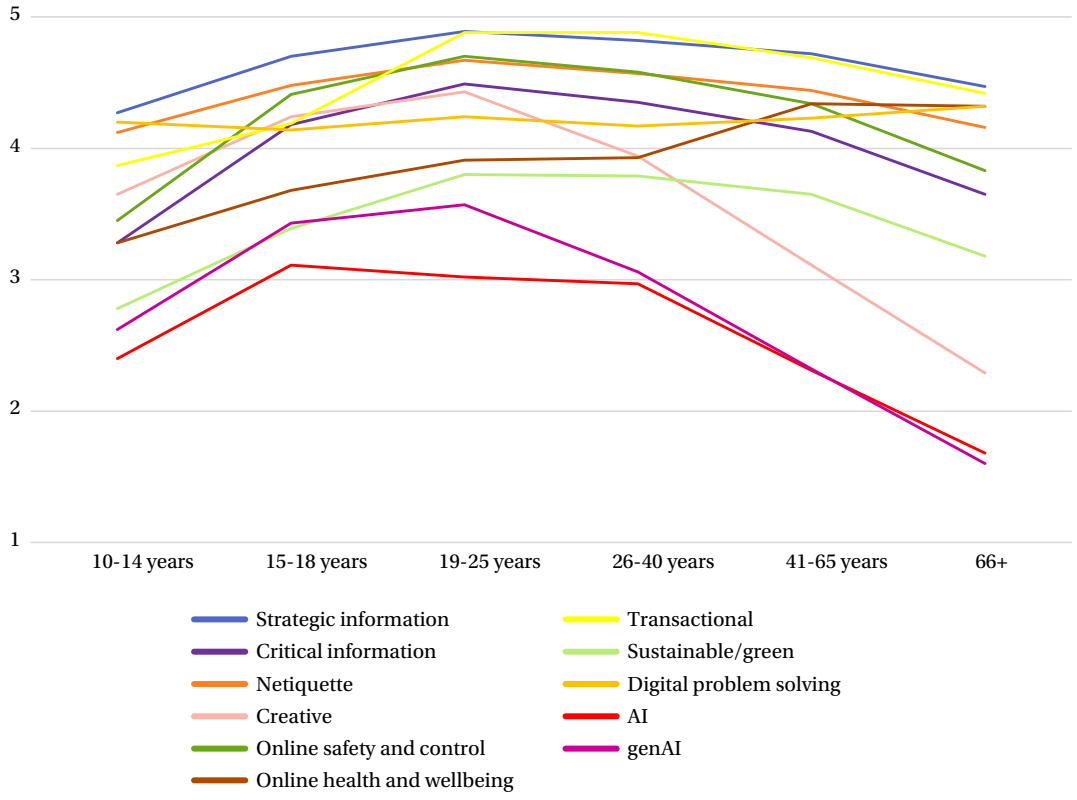
- Skills and knowledge in the field of (gen)AI are generally low.
- Children, the elderly, and low-educated Dutch people score low on knowledge about the privacy, validity, and reliability of genAI and the personalization of news and entertainment by AI, and are not good at creating prompts that utilize the benefits of genAI.
- People perform poorly at recognizing and using genAI, and, aside from social media, they do not always know which apps or websites use AI to tailor content to them.

3.3 Vulnerable groups based on age and education level

3.3.1 Young children, the elderly, and the less educated score the lowest on digital competence

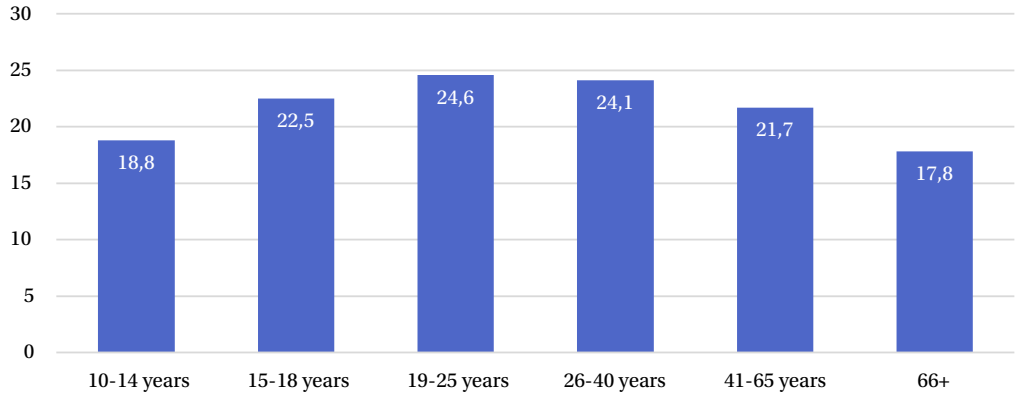
What Dutch people find difficult online varies by age group. Older adults and children have the least confidence in themselves when it comes to digital skills, such as critical information literacy, creative skills, and online safety and control (see Figure 12). Young adults and adults (between 19 and 40) have the most confidence. An exception to this is using digital devices in a healthy way, which becomes easier with age. Older people, on the other hand, are much less confident when it comes to creative skills, where teenagers and young adults score higher.

Figure 12: Trust in digital skills per age group



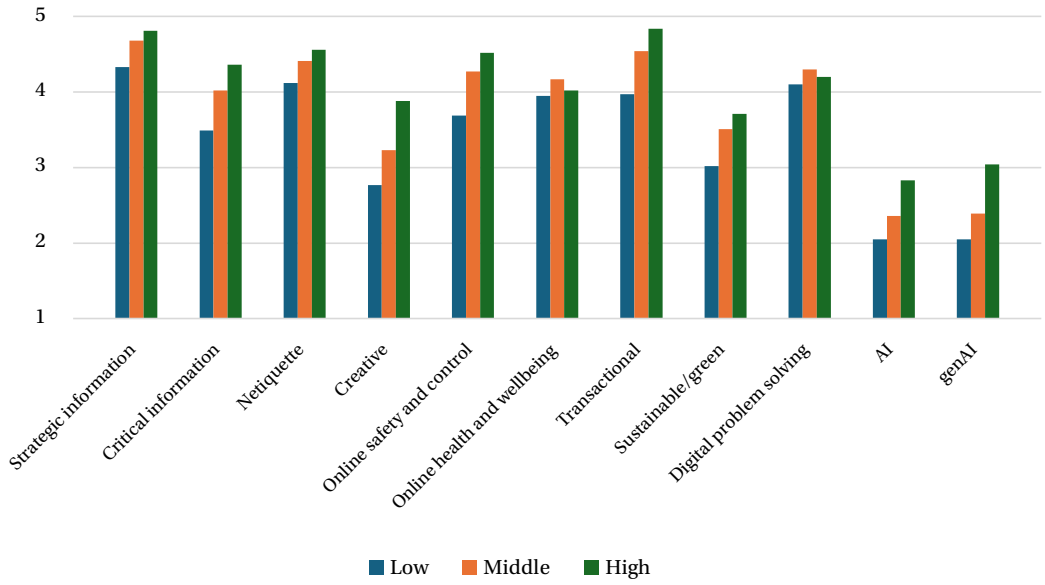
The differences in confidence in digital skills correspond to differences in knowledge. As shown in Figure 13, the number of correctly answered digital knowledge questions increases from childhood to young adulthood. After that, digital knowledge declines again as the Dutch grow older.

Figure 13: Knowledge score per age group



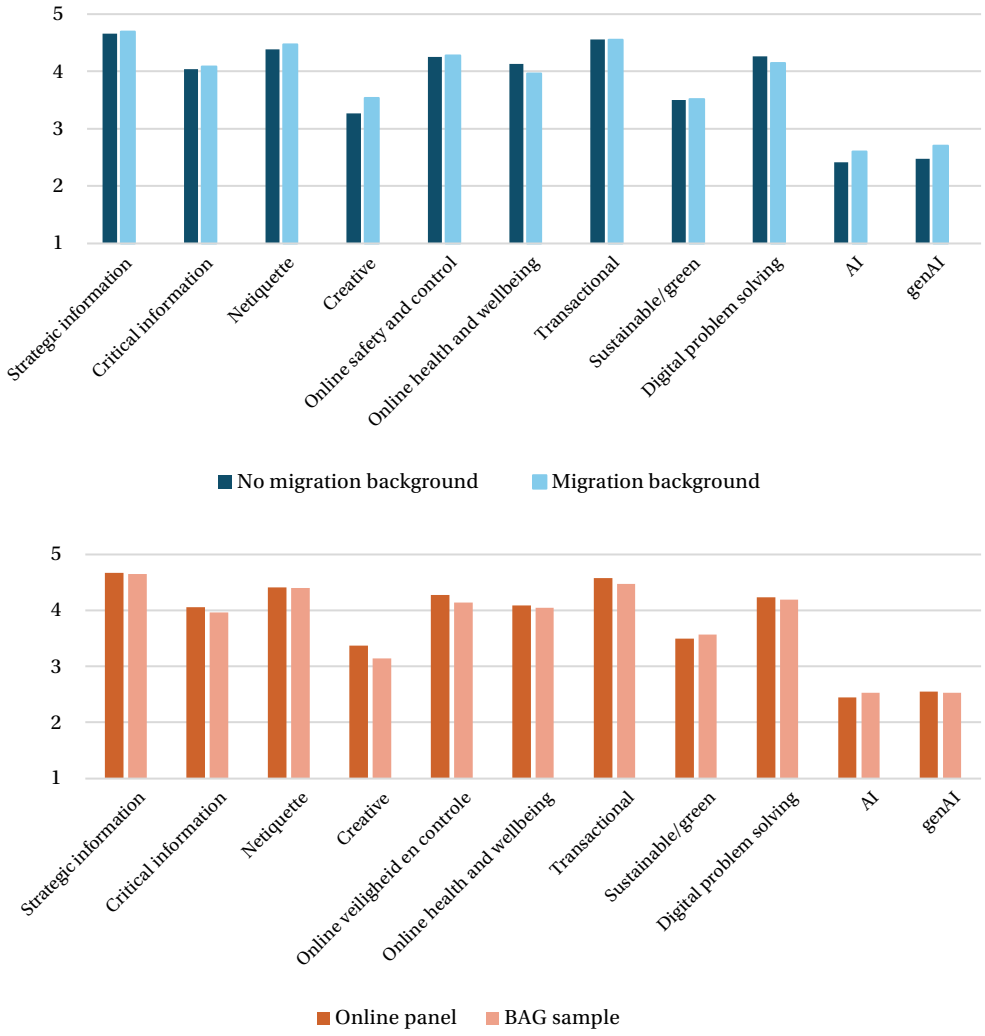
Besides age differences, we also see differences in digital competencies between people with different educational levels (see Figure 14). Higher-educated individuals consistently have more confidence in their digital skills in almost all areas, although there are also some skills where the differences between educational levels are small (e.g., strategic information skills, netiquette, online health and well-being, and digital problem solving). The largest differences between educational levels are seen in creative digital skills, transactional skills, and (gen)AI skills. However, people with lower levels of education also find it more difficult to use their devices and data securely and to critically evaluate online information. We also see differences in the number of correctly answered knowledge questions between people with a high (24.1), middle (20.9), and low (18.1) educational level.

Figure 14: Trust in digitale skills per education level



There are hardly any differences between people with and without a migration background, in both digital knowledge and skills (see Figure 15). This is also reflected in the small differences between the two samples, the online panel versus the BAG sample, where the BAG sample was taken in neighborhoods where we would expect to find more people with a migration background.

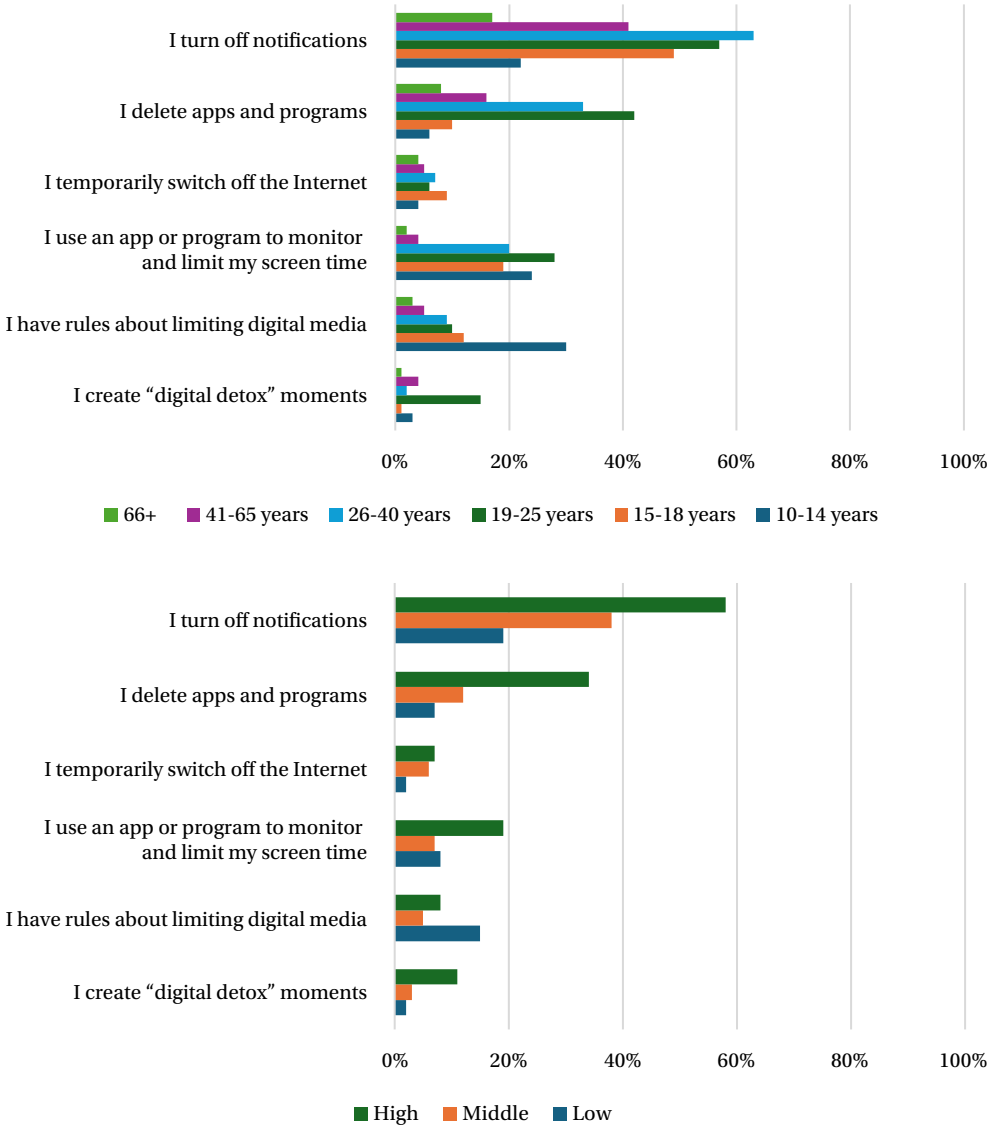
Figure 15: Trust in digital skills per migration background and sample type



3.3.2 Differences in online well-being behavior

As mentioned above (see 3.1.3), online health and well-being strategies are rarely implemented. When looking at different age groups and education levels (see Figure 16), we see that among children aged 10 to 14, approximately one-third have rules at home about limiting digital media, and about a quarter use an app or program to monitor and limit screen time. This latter strategy is also used more by young adults and among highly educated individuals. Highly educated individuals also more often delete apps and programs from their phones to enhance their online well-being. Among those with a lower level of education, the percentage of individuals who have rules at home regarding screen use is slightly higher compared to those with other education levels.

Figure 16: Strategies to reduce screen time, per age group and education level



The fact that the percentages for monitoring screen time are higher among younger age groups is encouraging for the future online health and well-being of the Dutch population, but it remains concerning that only a small minority (including young people) applies rules regarding screen use, or uses strategies for monitoring screen time. The fact that rules about screen use are slightly more common in homes among people with lower levels of education may be a positive development, but this could also indicate that these households impose general restrictions on media or screen use, without specifically addressing which apps are more or less harmful or learning to consciously manage digital media and screen use. Research has shown that restricting media use is not always effective and can negatively impact the development of digital skills (in young people) and reduce the positive effects of media use.[18]

18 Rodríguez-de-Dios I, Van Oosten JMF & Igartua JJ (2018). A study of the relationship between parental mediation and adolescents' digital skills, online risks and online opportunities. *Computers in Human Behavior 82,* 186–198. https://doi.org/10.1016/j.chb.2018.01.012

3.3.3 Correlation with education level-related factors

In addition to looking at differences in educational levels, we also examined the correlation with indicators such as low literacy (i.e. how often someone needs help reading written texts), SES, work and study status and the use of a computer at work (this last variable was only asked for respondents who are employed).

As shown in Table 2, low literacy is consistently negatively correlated with confidence in digital skills and digital knowledge. Having concerns about one's financial situation (an indirect measure of SES) also appears to be negatively correlated with confidence in digital skills, but these correlations are very small. Being employed is generally positively correlated with digital skills, except for "online health and well-being" and "digital problem-solving." The number of hours spent working on a computer appears to be less strongly associated with digital skills, although the correlations with creative skills, online safety and control, and transactional skills are strongest. Being employed, and the number of hours spent using a computer at work, are also positively correlated with digital knowledge and scores on the performance tests.

The small correlations between (gen)AI skills and low literacy are noteworthy. It is possible that some low-literate individuals use (gen)AI to assist with daily tasks (such as writing emails or making texts more comprehensible), giving them more confidence in their genAI skills, while other low-literate individuals have little confidence in these skills due to generally low digital skills. This could result in a small negative correlation for the entire sample of low-educated individuals. It is also notable that (gen)AI skills have a small, but positive, correlation with financial worries. This could be because young people, who generally have a lower SES or more financial worries, are more proficient in (gen)AI. Further research could focus on the reason behind the difference in these correlations with other skills.

Also noteworthy are the negative correlations between confidence in many skills and student status (except for creative and (gen)AI skills). This group may be more critical of their own digital skills than non-students, or they may be more aware of what's possible online and therefore more aware of their lack of skills (see also the conclusion above about "you don't know what you don't know"), but further research is needed to clarify this.

> ***"Age and education level, as well as literacy and having a job (involving a computer), determine digital competence."***

Table 2: Correlations between digital skills and education level-related factors

	Low literacy	Financial worries	Working	Number of hours of computer use at work	Studying
Strategic information	-0.29	-0.13	0.21	0.10	-0.16
Critical information	-0.29	-0.07	0.28	0.12	-0.15
Netiquette	-0.23	-0.09	0.18	0.10	-0.07
Creative	-0.12	0.06	0.22	0.20	0.21
Online security and control	-0.29	-0.06	0.27	0.19	-0.16
Online health and well-being	-0.18	-0.14	0.01	-0.09	-0.25
Transactional	-0.39	-0.13	0.33	0.22	-0.33
Sustainable/green	-0.21	-0.06	0.20	0.09	-0.15
Solving digital problems	-0.12	-0.15	-0.01	0.04	-0.05
AI	-0.09	0.08	0.19	0.14	0.14
genAI	-0.09	0.08	0.21	0.18	0.17
Knowledge score (sum score)	-0.17	-0.04	0.39	0.22	-0.07
Performance (sum score)	-0.05	0.02	0.32	0.18	-0.08

Points of interest:

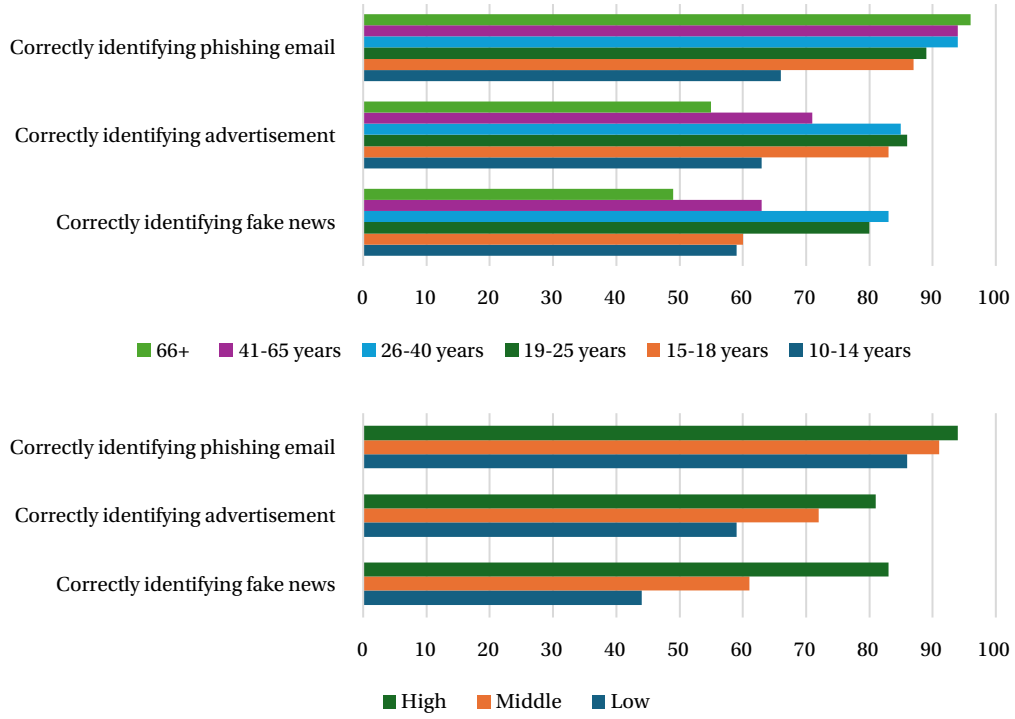
- Children, the elderly and the less educated score lower on digital skills and knowledge.
- There are hardly any differences between people with and without a migration background in both digital skills and knowledge.
- Low-educated people have more rules at home regarding screen use, but it is not clear whether this is associated with a more or less conscious use of digital media.
- Literacy and employment (using a computer) are consistently correlated with digital skills and knowledge. Experiencing financial worries is less strongly correlated with digital skills.

3.4 Online security varies

3.4.1 Recognizing deception

The Dutch perform reasonably well on critical skills and online safety. As a performance test for critical information skills and online safety, 71% correctly identified fake news on social media, 75% correctly identified advertising on social media, and 93% correctly identified an phishing email. Children aged 10-14 were, however, worse at recognizing phishing emails (63%) compared to other age groups. Children and those aged 66 and over also performed worse at recognizing fake news and advertising on social media, as were people with a lower educational level (see Figure 17).

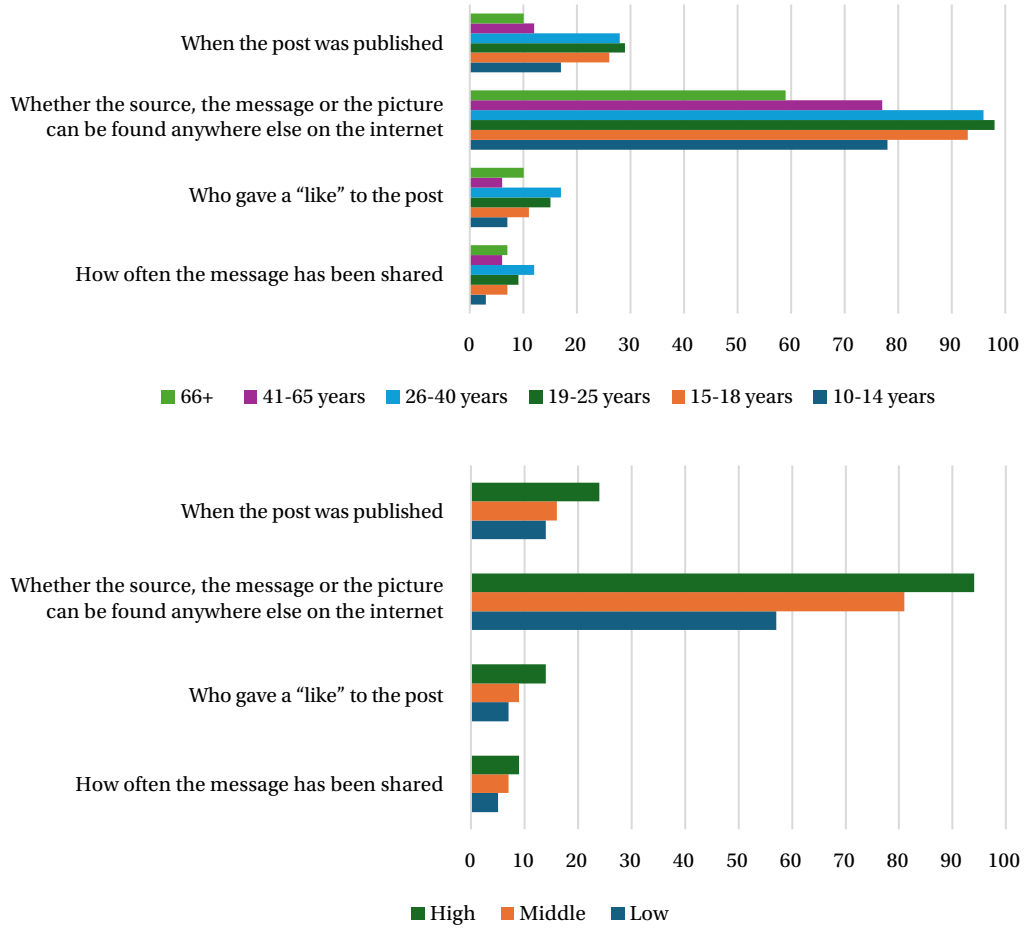
Figure 17: Percentage good score on performance test
critical skills and online safety, per age and education level



"The Dutch are critical of online deception, but are less aware of safe online shopping and advanced security measures."

Furthermore, 80% correctly indicated that you should look up "whether you can find the source, the message, or the photo somewhere else on the internet" to check if something is fake news, with (young) adults and highly educated people scoring better than children, the elderly, and the lower educated. However, 69% selected the correct answer **only**. Incorrect answers were also selected; 8% thought you could also recognize fake news by how often the post was shared, 11% by who liked the post, and 18% by when the post was published (see Figure 18).

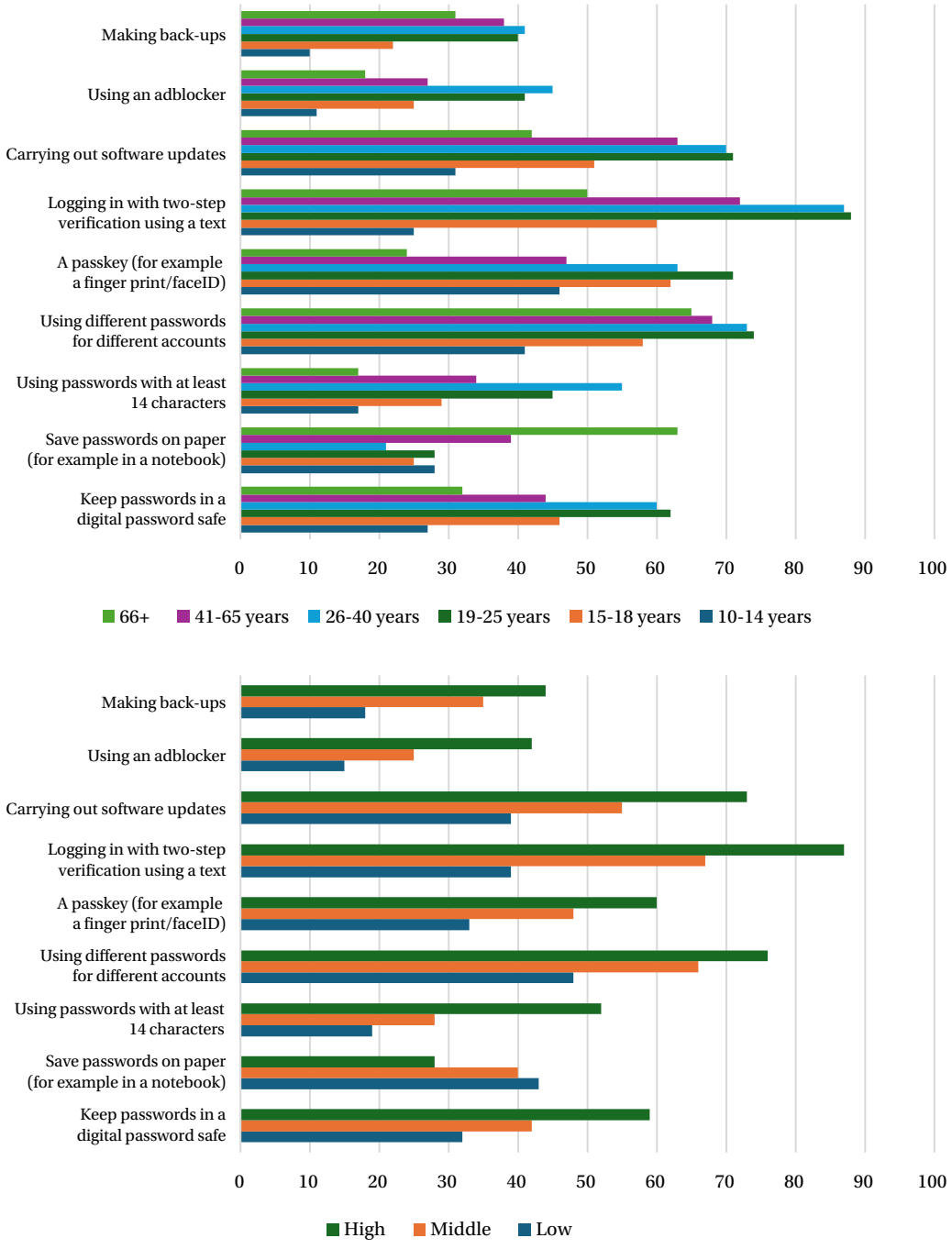
Figure 18: Percentage strategy to recognise fake news, per age and education level



3.4.2 Behavioral measurement of safety measures

Nearly 94% of respondents performed at least one activity related to safety and control of information and devices. However, 37% also gave an "unsafe" answer, namely writing down passwords on paper. Among those aged 66 and over, this percentage was much higher: 63%. Elderly people and children also use long passwords and digital vaults to store passwords less frequently than other age groups. Children use two-step verification less frequently. Elderly people used technological tools for online security, such as passkeys, the least (see Figure 19).

Figure 19: Percentage online safety strategies per age and education level



The age differences in the behavioral measurement correspond with knowledge. The statement "Logging in to a computer or phone with a passkey (such as a fingerprint or facial recognition) is more secure than with a password" was correctly answered as true by a large majority of children, adolescents, and (young) adults (66-70%), while this percentage is lower for older adults (54%). However, hardly any differences in educational level were found for this statement. The answers to the statement "It is best to use the same password for every account" (*false statement*) are also virtually the same regardless of educational level, and all age groups score consistently high (90-100%).

3.4.3 Safe online shopping

At the same time, the Dutch seem vulnerable to online scams: few Dutch people know how to check whether an online webshop is secure; only half of respondents knew they could click the "Thuiswinkel Waarborg" icon to see if shopping online is safe (for example, with secure personal data storage and a secure payment environment). One-third of respondents thought they could check this by clicking an "https" icon, and about 5% thought they could check it by clicking an "iDeal" icon.

The percentage of people who correctly identified the "Thuiswinkel Waarborg" icon was highest among adults between 26 and 65 (54-58%) and lowest among teenagers (34%) and young adults (33%), but also few older people (40%) were able to correctly identify this. Similar differences were found for education level, with 43% of those with a low level of education and 53% of those with a high level of education appearing to be familiar with the "Thuiswinkel Waarborg" icon. Incorrect answers, such as clicking on an "iDeal" icon, were most common among those with a low level of education (9%) and the elderly (10%). A significant proportion of those with a low level of education (10%) and elderly (13%) also believed that clicking on a DigiD logo could verify a webshop's security.

Regarding the knowledge item on safe online shopping, one-third of Dutch people (32%) believed an online store is safe if you can pay with iDeal. There were significant differences in age and education level on this item: (young) adults (81-84%) and highly educated individuals (79%) largely scored well on this item (and therefore indicated that this statement was incorrect), while about half of children (51%), older adults (50%), and less educated individuals (52%) answered this item correctly. Therefore, there appears to be room for improvement in knowledge about safe online shopping, which is an important point of attention, as crime and fraud are increasingly taking place online.[19,20]

+

Points of interest:

- The Dutch perform reasonably well on critical skills and online safety.
- Nearly all Dutch people use strategies to keep their online data and devices safe.
- More technologically advanced strategies (such as online password vaults, passkeys, or two-step verification) are less used by children and the elderly.
- For safe online shopping, the Dutch does not perform well.
- Children, the elderly and the less educated in particular do not seem to know when it is safe to shop online and how to check this.

19 https://www.politie.nl/nieuws/2024/november/21/00-ruim-100-miljoen-euro-schade-door-online-fraude-in-2023.html

20 https://www.politie.nl/nieuws/2024/maart/11/00-steeds-meer-slachtoffers-online-criminaliteit.html

3.5 The Dutch can keep up, but are they ready for the future?

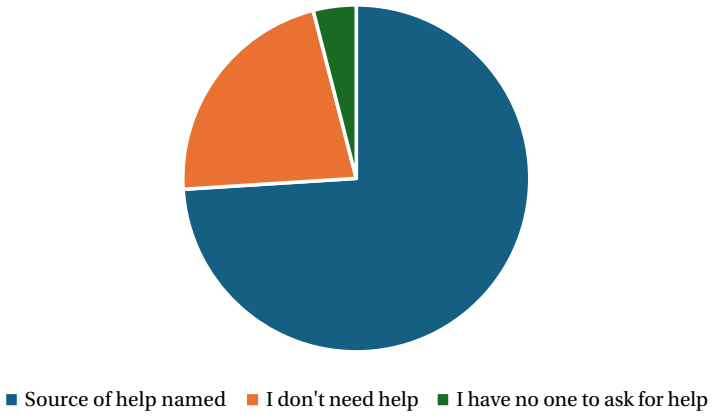
3.5.1 Transactional skills

In general, the Dutch know how to use digital technology to participate in society (e.g., arranging financial or civic affairs, or arranging healthcare online); 68-93% of the Dutch correctly answered knowledge questions about transactional digital skills. Knowledge about safe online shopping is the lowest in this regard (see also 3.4.3). Concerns are often expressed about the inability of older adults to keep up with the digital society[21,22], but this does not seem to apply in all areas. For example, the confidence older adults have in their transactional skills corresponds with their knowledge of using DigiD, with 96% of older adults knowing that DigiD can be used to log in to both government and healthcare websites. However, knowledge about whether emergency medical matters should be handled online is lower among older adults (as well as children) than among other age groups. 74% of older adults and 67% of children answered this knowledge item correctly, compared to 87-91% of (young) adults.

3.5.2 Finding help with problems

When people struggle to navigate the digital world or experience online problems, it's important to know how to find (expert) help. Three-quarters of respondents indicated they have someone they can turn to for online problem solving, 22% said they did not need any help, and 4% had no one to ask for help.

Figure 20: Who do you ask for help if something does not work with social media or digital technology?



21 https://sociaal.net/achtergrond/ouderen-digitaal-vaardig-digitalisering/

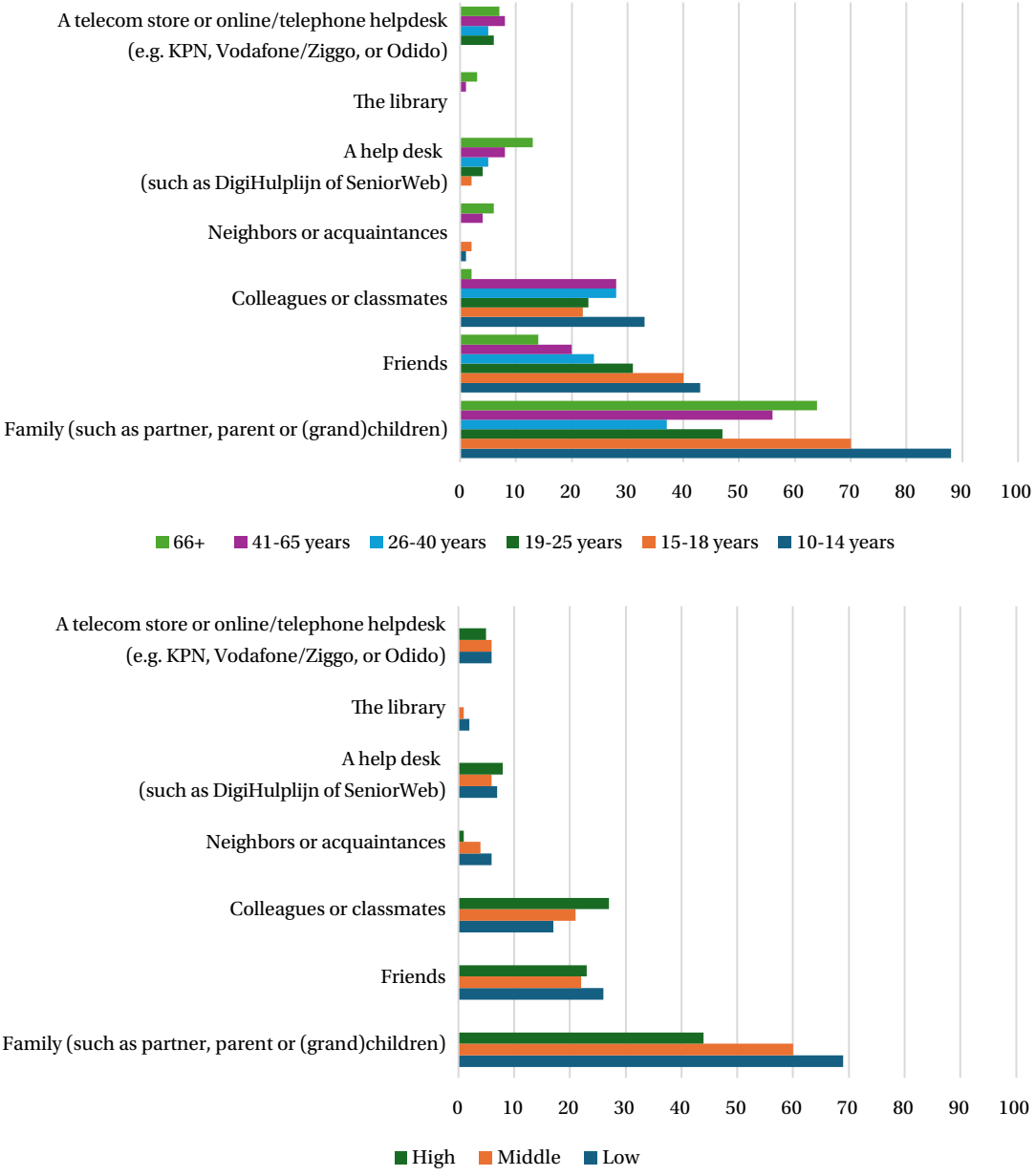
22 https://www.maxmeldpunt.nl/digitalisering/vrijdag-op-tv-ouderen-buitengesloten-door-digitalisering/

> ***"More attention is needed to digital sustainability and finding expert help with online problems"***

Older people in particular (6%) indicated that they had no one to ask for help, while few 19-25 year olds indicated this (less than 2%). Children were the least likely to indicate that they do *not* need help (5%) and 19-40 year olds the most (33-36%). Of the less educated, 13% say they do not need help, compared to 32% of highly educated people.

For online problems, the Dutch primarily turn to family, friends, or colleagues for help. Only 1% of the Dutch population knows how to access professional help, such as a library (see Figure 21). However, older adults are more likely to find a helpdesk (such as SeniorWeb) than other age groups. While it's clear that help with digital skills is needed, how we can best reach the Dutch population is a key focus for the future.

Figure 21: Percentage named help source, per age group and education level

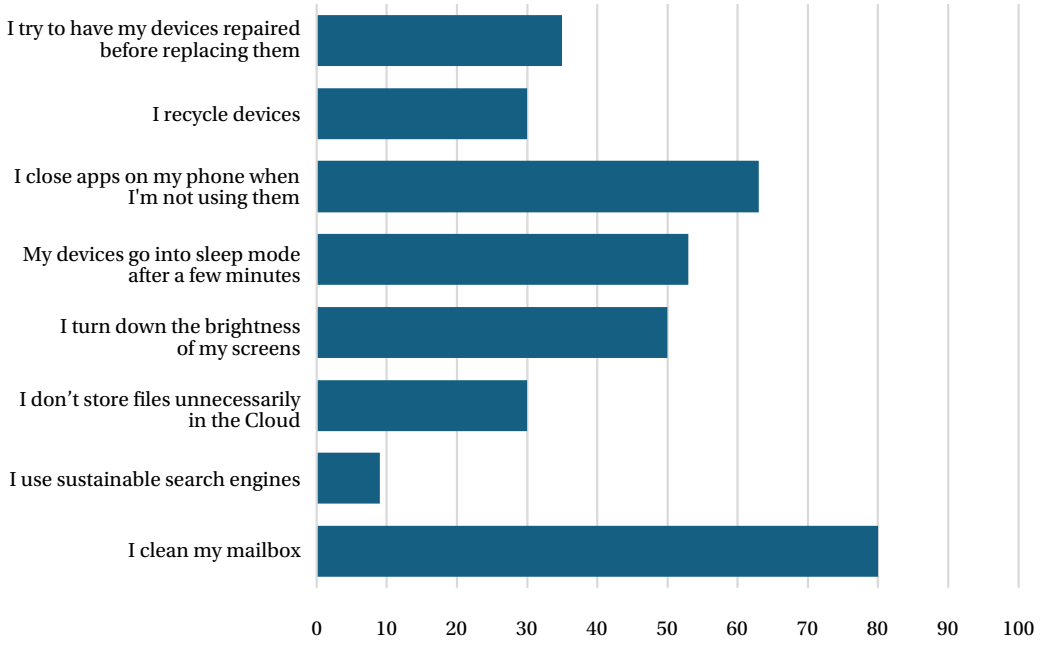


3.5.3 Sustainability of digital media use

Participating in the digital society also means ensuring that the Dutch use of digital media is future-proof. As mentioned above in Chapter 3.2, keeping up with the latest developments, such as those in (gen)AI, seems to be difficult for many Dutch citizens, although the outlook for young people is brighter. Perhaps also worrying is that few people are aware of the impact of their digital behavior on the climate. The enormous data usage and computing power required for generative AI place a significant burden on the climate, yet only 53% of the Dutch population appears to be aware of this. Knowledge of this topic is low among children aged 10 to 15, at 36%, but rises significantly to 74% among young people aged 19 to 25.

In addition to the impact of genAI on the climate, people will need to be aware of the sustainable use of digital media in general to ensure its future viability. Although 96% of respondents indicate they use one or more strategies to use digital media sustainably, these are primarily "simple" ways to save battery life (e.g., setting the screen to power-saving mode). Strategies that could have a greater environmental impact (e.g., using sustainable search engines or limiting cloud storage) are rare (see Figure 22).

Figure 22: Percentage sustainability strategies by entire sample



Points of interest:

- The Dutch, including older age groups, possess sufficient skills and knowledge to participate in the digital society (for example, the use of DigID).
- A large majority indicate they occasionally need online help and know where to find it. Help is primarily found with family and friends, and much less frequently at a helpdesk or library. Older adults are most likely to consult an online helpdesk.
- The Dutch seem to know little, and do little, to keep their digital media use (environmentally) sustainable.

4 Conclusion and next steps

This report reveals a potential "unconscious lack of awareness" people have about their own digital skills and knowledge. The Dutch don't always seem aware of their lack of knowledge and skills regarding the dangers of online shopping, the reliability of online information (especially when using genAI), proper netiquette, and how best to protect their personal data.

Technology is evolving rapidly, and new tools and platforms are constantly being introduced. This can be overwhelming, and people may struggle to keep up. Many people have never received formal training in digital skills, and traditional educational programs often lack the speed or flexibility to keep pace with technological change. This leads to a situation where people do not know what skills they are missing because they have never been exposed to the relevant knowledge. Identifying these *blind spots* in digital skills can help in developing effective educational programs and awareness campaigns. By informing people about precisely those areas where there is little awareness, we can improve their digital competencies and better prepare them for the future challenges of the digital age.

4.1 Policy action points

Based on the results of this report and the identified key points, the following policy action points are recommended:

- ✓ Organize workshops and training for different age groups and educational levels to make them aware of their digital blind spots and provide them with the necessary skills and information about the possibilities and risks of online activities.
- ✓ Create workshops that focus on specific strategies people can use to reduce their screen time, protect their privacy and data (especially more advanced technologies), and use digital media sustainably.
- ✓ Launch a national awareness campaign about the impact of GenAI on privacy and information reliability.
- ✓ Develop accessible educational programs that specifically reach low-educated and low-literate individuals, the elderly, and unemployed people.
- ✓ Focus these programs primarily on critical information skills, online safety and control, and transactional skills.
- ✓ Increase the visibility of libraries and (online) helpdesks as a resource for online problems.

4.2 Follow-up research

The upcoming data collection rounds within the CID project will focus, among other things, on how the digital skills of the Dutch population change over time. Long-term and regular monitoring is essential for this. Monitoring is also crucial for assessing the effectiveness of education and training, and for identifying areas where more attention is needed and for which (groups of) people. A dashboard with real-time insights based on the most recent data can help policymakers develop appropriate policies for the right target groups and make rapid adjustments. The development of this dashboard will be central in the coming period. A key component of regular monitoring is the establishment of follow-up waves. Therefore, in subsequent measurement rounds, we will follow a group of (young) adults over a longer period. When designing subsequent measurement points, we will also consciously critically examine digital innovations, and the DigIQ2.0 measurement will be adjusted and expanded as necessary.

Colophon

About the authors

Dr. Annemarie van Oosten is a senior researcher, daily project manager, and contact person for the CID project. She is also a university lecturer in communication science at the University of Amsterdam, where she received her PhD in 2015. In addition to her research on digital competence, she investigates the role of (social) media in the sexual and gender attitudes and behaviors of young people.

Roos Korderijnk, MSc. is a junior researcher for the CID project. Roos studied Communication and Information Sciences at Utrecht University and Communication Sciences at Vrije Universiteit Amsterdam.

Prof. Dr. Jessica Taylor Piotrowski is the principal investigator of the DIGCOM project and the CID project. Jessica is a professor of Digital Society at the University of Amsterdam, director of the Center for research on Children, Adolescents and the Media (CcaM), and director of the Graduate School for Communication. Her research focuses on how the digital society and the development of (young) people influence each other.

Dr. Dian A. de Vries is Associate Professor of Digital Skills at the Utrecht University of Applied Sciences, at the lectorate Organizations in Digital Transition. Dian received her PhD from the University of Amsterdam (2014) and is co-author of De Schermwijzer: A practical guide for (grand)parents on screen time, social media, gaming, and online safety.

Prof. Dr. Claes H. de Vreese is co-applicant of the DIGCOM project. Claes is a university professor of Artificial Intelligence and Society at the University of Amsterdam. He is also the founder and director of the Digital Democracy Center and co-founder of the AI, Media and Democracy Lab. Claes conducts research into the role of media and artificial intelligence in democracy.

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More information?

On this webpage https://osf.io/d5c7n/ all information about this project can be found, such as information about the research methodology, the code, and the results of the data analyses. The data and DigIQ2.0 questions and code are also available for use by others.

For questions or more information, please email todigiq-cw-fmg@uva.nl

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