



POLICY BRIEF

Towards a better understanding of digital skills: On inequalities and their impact

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





Policy Brief 2

Towards a Better Understanding of Digital Skills: On Inequalities and Their Impact

Leen d'Haenens

30 December 2021



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



1. Policy Context

In March 2021, the European Commission launched the [2030 Digital Compass: the European way for the Digital Decade](#), which translates Europe's digital ambitions into concrete objectives. To achieve the 2030 digital decade targets, a governance framework based on projected trajectories and annual cooperation between the European Commission and the Member States will be established. To this end, the Member States will need to define national projected trajectories and propose national strategic roadmaps, outlining their plans to attain them. Within this ambitious agenda, **children and young people are a key focus** of the European Commission for whom the best possible (online) world must be created. The rights perspective of children in the [EU Strategy on the Rights of the Child](#) and support in effective training and education in the digital age, as proposed in the [Digital Education Action Plan \(2021-2027\)](#), bear witness to this.



In **ySKILLS** we understand **digital skills** as *a diverse set of technical/operational, information navigation, communication and interaction, and content creation and production skills*, which are **unequally distributed** and **influenced by a number of individual, social and country characteristics**, each with repercussions for the policies to be followed.



ySKILLS focuses on the **role of digital skills** as a possible **buffer** against potentially negative outcomes or as a **reinforcement** for positive outcomes of the use of digital technologies.



Moreover, ySKILLS seeks to acquire extensive **knowledge and better measurement of digital skills** as a basis for evidence-based policy. Another objective of ySKILLS is to explain the uneven distribution of digital skills through a model that identifies the actors and factors, and the pathways that lead to the acquisition of digital skills.

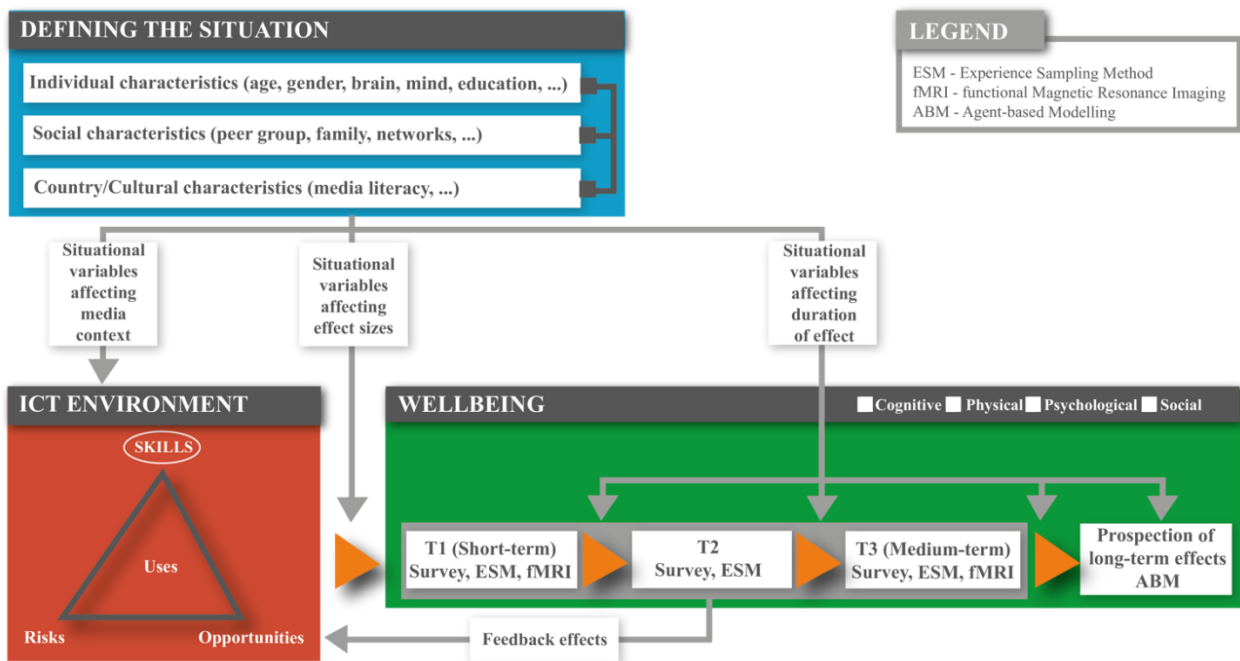


Figure 1: the ySKILLS model



2. Identifying Digital Inequalities

The distinction between different levels of digital divide is well known. **The first-level digital divide** refers to **inequalities in access to digital technologies** related to different (economic) backgrounds. **The second level digital gap** relates to **differences in digital skills** and online activities. Owing to the presumably important **implications for people's general wellbeing**, **the third level digital gap** shifts the focus to the different **outcomes** achieved after using digital technologies (e.g., Helsper, 2021; Van Deursen et al., 2017).

The second year of the ySKILLS research saw the **completion of the first wave of the three-wave longitudinal study in schools** among **12- to 15-year-olds**. In doing so, the teams in the six ySKILLS focal survey countries (Estonia, Finland, Germany, Italy, Poland, and Portugal) were hampered by, among other things, the different waves of the pandemic, conditions differing from country to country, and a growing reluctance by parents to sign and return a form if they consent for their child to participate in the study. Our experiences and the lessons learned have been compiled in a **webinar**. Part of the survey included questions on digital skills, which gauged the **perceived digital skills and knowledge** of children and young people. In the meantime, the **performance tests** that will be carried out alongside the second wave of survey questions have also been prepared, precisely so that the perception of digital skills and knowledge can be tested against actual digital skills levels.

Initial ySKILLS survey results suggest that across the board, **age** is positively related to perceived digital skills and knowledge, except for content creation. A look at **gender** shows a more differentiated picture. Boys reported having the most technical/operational skills. Girls rate their information navigation and content creation skills lowest, and non-binary youth gave themselves the highest score on content creation and production, and digital knowledge. **Language spoken at home** yields few differences when it comes to self-perceived digital skills. Twelve- to 15-year-olds who speak a different language at home from that of the majority rate themselves higher on digital knowledge than majority peers.

Table 1: Averages (gender and language) or correlations (age) for perceived digital skills

	<i>T/O</i>	<i>INP</i>	<i>C&I</i>	<i>CC&P</i>	<i>DK</i>
<i>Age</i>	.14	.05	.05	.02	.10
Gender					
<i>Boy</i>	0.62	0.42	0.64	0.41	0.49
<i>Girl</i>	0.48	0.29	0.64	0.34	0.48
<i>Non-binary</i>	0.60	0.42	0.67	0.50	0.57
Language					
<i>Majority</i>	0.55	0.35	0.62	0.40	0.45
<i>Other</i>	0.53	0.36	0.64	0.38	0.49

Notes: T/O=Technical/operational skills; INP=Information navigation/processing; C&I=Communication & interaction; CC&P=Content creation & production; DK=Digital Knowledge; correlations in red are significant and means in red differ significantly.



3. Digital Skills and Digital Knowledge in Relation to Tangible Outcomes

A recent [systematic research evidence review](#) identified 34 studies that used cross-sectional survey methods to examine the relation of digital skills with tangible outcomes. Two-thirds of that research concerned the relation with online opportunities or other benefits. Another third examined online risks of harm. Findings showed a positive relationship between digital skills and online opportunities, information benefits, and orientation to technology. Greater digital skills were also linked to greater exposure to online risks, although any link to harm was unclear. While technical skills were linked with mixed or negative outcomes, information skills were linked with positive outcomes. Little research was found on the outcomes of communication or content creation and production skills ([Livingstone, Mascheroni, & Stoilova, 2021](#)).

Initial ySKILLS survey findings in six countries show that self-perceived digital skills and knowledge are associated with more exposure to a range of risks such as cyberhate and sexting as receiver and to a lesser degree as sender, and experience with sexual images online.

Table 2: Averages (cyberhate, sexting as a receiver, sexual images, wellbeing) or correlations (sexting as a sender, opportunities) for self-perceived digital skills

	<i>T/O</i>	<i>INP</i>	<i>C&I</i>	<i>CC&P</i>	<i>DK</i>
Risks					
<i>Cyberhate</i>					
Yes	0.59	0.37	0.67	0.40	0.54
No	0.55	0.36	0.64	0.35	0.47
<i>Sexting (R)</i>					
Yes	0.63	0.40	0.71	0.45	0.55
No	0.54	0.33	0.63	0.34	0.49
<i>Sexting (S)</i> (higher=more)	.03	.05	.01	.07	.03
<i>Sexual images</i>					
Yes	0.61	0.38	0.68	0.41	0.54
No	0.54	0.35	0.65	0.36	0.48
Opportunities					
Online learning	.11	.14	.09	.10	.12
Social relations	.15	.11	.20	.17	.09
Entertainment	.16	.11	.14	.14	.10
Content creation	.24	.26	.16	.35	.11
Health-related	.07	.08	.09	.12	.08
Wellbeing					
Low	0.55	0.35	0.64	0.37	0.51
High	0.55	0.36	0.64	0.38	0.48

Notes: *T/O*=Technical/operational skills; *INP*=Information navigation/processing; *C&I*=Communication & interaction; *CC&P*=Content creation & production; *DK*=Digital Knowledge; correlations in red are significant and means in red differ significantly.



Higher self-perceived digital knowledge is associated with lower levels of wellbeing. In contrast, all self-perceived digital skills and digital knowledge are also associated with a whole range of opportunities, be it online learning, engaging in social relationships, entertainment, content creation, or use of health-related digital technologies. However, sexting shows us the fine line between risks and opportunities, as it can be considered a form of intimate peer interaction or a result of sexually abusive behaviour (Chatzinikolaou & Lievens, 2021).

It goes without saying that ySKILLS's **longitudinal approach** will be crucial to examine how different assessments of wellbeing in children and young people, as they grow older, are related to use of digital technologies, and to types and level of digital skills.

In-depth ySKILLS studies are underway: focusing on age, gender, and vulnerability

ySKILLS is also particularly interested in learning more about gender and age in relation to skills acquisition to embrace online opportunities and to cope with online risks. In-depth studies are underway on three groups of at-risk (vulnerable or disadvantaged) children (i.e., from low SES homes, refugees, experiencing mental issues). Furthermore, one in-depth study focuses on youth confronted with an emerging issue, i.e., information disorders. Important to know is whether these differences are just part of life's rich trajectory or whether they can be considered inequalities that require policy interventions. Our initial findings show that the normative views of digital skills as an individual achievement and notions of opportunities and risks do not fit all youth, especially the vulnerable and disadvantaged.

4. Policy recommendations

The ySKILLS longitudinal survey and in-depth studies will be excellent resources to formulate recommendations on different trajectories towards positive outcomes. Based on our ySKILLS data collection so far, these are five policy recommendations that deserve attention:



- **Digital inequalities** at all three levels (access, skills, and outcomes) **should be kept in mind** when thinking of policy solutions.



- It is crucial to dare to **think out of the box** because "**groups**" are not **homogeneous**: diversity in terms of age, gender, migration, and social and economic background needs to be addressed.



- Young people in vulnerable or at-risk contexts have **different ways of engaging with digital technologies**. They may give different meanings to digital skills and have a different relationship with perceived opportunities and risks. It is important to **find out how they cope with negative experiences, what people/online help they get or call in to mitigate the situation**.



- As **cultural and national contexts vary**, **policies are needed at the national level**, in addition to the European level, to address digital inequalities.





- **Digital skills should be fostered by in a meaningful way.** Although schools have a key role, this responsibility should not be given to them only, as they will often lack the staff and the capacity to support digital literacy. Seen from a [lifelong perspective](#), other **stakeholders such as employers will need to be involved.**



References

Chatzinikolaou, A., & Lievens, E. (2021). Sexting amongst children and teenagers: Towards a policy that balances protection and autonomy. *ANSER: Five Years of Global Academic Collaboration Building Evidence for Sexual and Reproductive Health and Rights Policies*, 82–85.

Helsper, E.J. (2021). *The Digital Disconnect: The Social Causes and Consequences of Digital Inequalities*. London: Sage.

Livingstone, S., Mascheroni, G., & Stoilova, M. (2021). The outcomes of gaining digital skills for young people's lives and wellbeing: A systematic evidence review. *New Media & Society*. <https://doi.org/10.1177/14614448211043189>

Van Deursen, A.J.A.M., Helsper, E.J., Eynon, R., & Van Dijk, J.A.G.M. (2017). The compoundness and sequentiality of digital inequality. *International Journal of Communication*, 11, 452-47.

