

Bridging the digital divide for individuals with intellectual disabilities: Implications for well-being and inclusion

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Abstract

Background: Developments in digital technologies have transformed how people interact with the world, offering employment, education, communication, health benefits and entertainment. Research has shown that not everyone can easily access digital content, particularly people with intellectual disabilities. Despite internet access being recognised as a human right in the United Nations' Conventions on the Rights of Persons with Disabilities, this group faces significant disadvantages.

Methods: A thematic analysis of quantitative and qualitative findings was conducted with data from focus groups and interviews with 200+ participants across Ireland, Sweden, France, and the Netherlands on how people with intellectual disabilities are using technology at this time and access facilitators and barriers.

Findings: The pandemic exacerbated the digital divide between people with intellectual disabilities and their neurotypical peers, impacting physical and mental well-being. Growing demand for accessible digital skills training underscores the need to bridge this gap.

Conclusion: Addressing these digital access disparities is crucial to ensure that individuals with intellectual disabilities can enjoy the benefits of the digital age and maintain their well-being. By identifying priority topics in our interview data, researchers also pinpointed critical accessibility barriers and facilitators to support codesigning activities for future digital skills education content within the Digi-ID project.

KEYWORDS

collaborative practice, empowerment issues, health, inclusive education, intellectual disability, mental health

Accessible summaries

- Digital technology has changed the way we live, but not everyone can use it easily, especially people with intellectual disabilities.

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- Digital technology is used in every part of life, for example, keeping in contact with friends and family and connecting with all types of services. It is used in education and in workplaces.
- Our Digi-ID project was based in Ireland, Sweden, France and the Netherlands. The researchers from these countries listened to people with intellectual disabilities to learn how we can better support them to access and use technology.
- Our platform DigiAcademy has been designed with and for people with intellectual disabilities. Our teachers with intellectual disabilities have learnt the skills to show others how to build skills with confidence.
- If you would like to learn more, you can watch a short video cocreated with our teachers: <https://vimeo.com/783266517> or send us an email: digi-id@tcd.ie.

1 | INTRODUCTION

Research has shown that not everyone can easily access digital content, particularly people with intellectual disabilities (Chadwick et al., 2022; Kaplan & Haenlein, 2010; Sorkin et al., 2021). Despite internet access being recognised as a human right in the United Nations' Conventions on the Rights of Persons with Disabilities (United Nations Convention on the Rights of Persons with Disabilities UNCRPD, 2006), this group faces significant disadvantages (Chadwick et al., 2022). This paper presents a detailed investigation into the intersection of digital technology, physical health and mental well-being among individuals with intellectual disabilities. It is structured to provide a clear understanding of these intersections. This is followed by an introduction to the current study. The primary focus of this study is to examine whether people with intellectual disabilities encounter distinct challenges or differences in using digital technology for the improvement of their physical and mental health. It is important to note that this paper reports on a research study that was a result of collaborative research across four European countries. The research was conducted within the framework of the Digi-ID study, a multidisciplinary European research programme aimed at addressing digital literacy among individuals with intellectual disabilities. Countries that are involved in this research paper include Ireland, Sweden, the Netherlands and France. The project is Funded by the EIT Health (European Institute of Innovation & Technology) fund. The primary focus of this study is to examine the experiences of people with intellectual disabilities using digital technology for the improvement of their physical and mental health.

1.1 | Physical health

The role of digital technology in supporting the physical health of individuals with intellectual disabilities is multifaceted. Research has shown that People with intellectual disabilities use and interact with digital technology on a regular basis. Previous studies carried out with people with intellectual disabilities and their supporters have

identified the significant role that support, whether by caregivers, stakeholders or peers, can play in bridging the digital divide (Jane et al., 2019; Selick et al., 2022; Tsetsi & Rains, 2017). Studies conducted during and following the COVID-19 pandemic have suggested that a growing number of people with intellectual disabilities are using devices and technology to access health and well-being benefits (Jane et al., 2019; Martin et al., 2021; Ramsten et al., 2019; Tsetsi & Rains, 2017). During the pandemic lockdowns, many patients were faced with novel ways of using technology to manage and maintain their health independently, such as making online appointments. Previous research conducted with people who have intellectual disabilities has suggested that eHealth may provide new opportunities to deliver interventions that aim to support people with intellectual disabilities in maintaining their physical health (A Burke, 2021; Spassiani et al., 2023). As such, Internet access can assist in fostering well-being, support health and may also function as an enabling factor for independence and autonomy for people with intellectual disabilities (Barlott et al., 2020; Chadwick et al., 2016; Chiner et al., 2017).

1.2 | Mental health

Social inclusion for marginalised people, such as people with intellectual disabilities, has become increasingly important. As a topic, Social Inclusion has been recognised to be complex and research suggests that it encompasses many different attributes (Midgley et al., 2022; Simpican et al., 2015). Being part of a social group can provide health benefits for the individual, and conversely, exclusion can be detrimental to mental health (Baumgartner & Burns, 2013). Simpican et al. offered a definition of social inclusion that proposed that two domains were essential to social inclusion: community participation and interpersonal relationships (Simpican et al., 2015). During the pandemic, access to the internet and social media sites could have offered people alternative ways to interact with peers and build relationships. Within this context, digital inclusion could be seen as a key element to social inclusion and key

to mental health (Bayor et al., 2018). Sorkin (Sorkin et al., 2021) found that, in the United States, as the COVID-19 pandemic progressed and as lockdowns increased, people increasingly turned to digital technology to manage both their physical and mental health. While the use of social media has increased over the last decade (Kaplan & Haenlein, 2010), social media was also utilised during the global pandemic by people wanting to stay connected. Some research noted that those who engaged with social media faced increasingly negative patterns of engagement as the pandemic wore on (Jude et al., 2021; Midgley et al., 2022), but it is also important to recognise that for many, social media was the only way for them to stay in touch with friends and family.

Caton et al. (2022) found in their study that people with intellectual disabilities had a personal stake in taking part in online activities for social inclusion, with 72% of their participants reporting that they were either 'keen all the way through' this study or '...not keen at first but am now' to take part in online activities. This study suggested that internet usage holds value for people with intellectual disability to engage with their social connections (Caton et al., 2022). Spassiani et al (Spassiani et al., 2023) also highlighted the importance of engagement with digital technology to support social inclusion. They found that once the participants were supported in engaging with social media, they were able to create and maintain their own digital communities. This proved especially helpful to their participants during the COVID-19 pandemic, as they were able to participate online in activities and feel socially connected with their peers through these activities (Spassiani et al., 2023). These studies reiterate the mental health benefits that can occur because of social inclusion (Baumgartner & Burns, 2013).

As previously discussed, research has emphasised the positive impact of caregivers, stakeholders and peers in facilitating access to technology and promoting digital and social inclusion. However, a critical perspective has emerged from other studies (Chadwick & Buell, 2023; Chadwick, 2019; Mikulak et al., 2023), providing valuable insights into the complexities of digital inclusion and the multifaceted role of support. This research highlights how support from a caregiver using technology can also act as a potential gatekeeper to digital inclusion. Chadwick (Chadwick, 2019) analysed reactive attitudes to risk, suggesting that risk aversion may hinder efforts to promote digital literacy and engagement among this population. Meanwhile, Mikulak et al.'s (Mikulak et al., 2023) findings underline the issue of prioritisation and how some caregivers and stakeholders may not prioritise digital inclusion due to various factors. Despite these challenges, it remains evident that family and caregiver support are crucial for enabling people with intellectual disabilities to engage with technology, particularly for health-related purposes.

1.3 | Research with people with intellectual disabilities

The pandemic accelerated research into the effectiveness of conducting online focus groups in collaboration with people with intellectual

disabilities, with positive preliminary findings (Chadwick et al., 2022). In Murphy, Fiori (Chadwick, 2019), the researchers collected success strategies, such as good advertising and incentives, electronic calendar invitations, reminders, limited duration of meetings, as well as how to support managing technical difficulties, low participant engagement and suboptimal data collection. Research using online focus groups can be particularly useful to digital health intervention studies, in that they can facilitate a user-centred design methodology and iterative co-creation and Codesign process to inform, shape and determine the priorities within the proposed intervention.

1.4 | The current study

The current study sought to investigate whether people with intellectual disabilities experience differences or encounter difficulties when using digital technology for physical and mental health purposes. This study utilised data gathered during the first phase of the Digi-ID study. Digi-ID is a multidisciplinary European research programme and was designed with the goal of addressing digital literacy among people with intellectual disabilities. DigiAcademy is an accessible digital skills education video platform. It was co-designed by people with accessibility needs and the courses are taught by individuals with intellectual disabilities and autism. The platform is underpinned by person centre planning, delivering accessible digital literacy training and enabling learners to pair with a supporter, should they wish to map their learning progress. Learners can also monitor their goal tracking and engage in accessible end-of-course assessments. The programme was designed, embedding the social innovation of establishing Citizen Advisory Panels (CAP), a group of 14 individuals with Intellectual disabilities and autism. Our Citizen Advisory Panel review and validate all key programme decisions to ensure accessibility. They are paid experts by experience and are team members within Digi-ID.

The CAP have diverse ages, genders and digital competencies and are paid experts by experience in the lead partner country, Ireland. The Irish-based HEI is the Lead European partner. Partner countries replicated the model established by Lead Partner in Ireland. Each Partner country now replicates this model and has established their own national Citizen Advisory Panels. To evaluate and validate findings, CAP meetings were held monthly to engage with all members in meaningful ways. The results of these meetings were analysed to pinpoint areas of focus for app development across the European partner countries involved in the first phase: France, the Netherlands and Sweden.

The Digi-ID study adopted a user-centred design methodology and iterative cocreation and codesign process to inform, shape and determine the priorities within the development of DigiAcademy.

2 | METHODS

In this section, an overview of the study materials, recruitment, participants, procedure and data analysis is presented.

2.1 | Materials

Drawing on experience of research teams working in collaboration with people who have intellectual disabilities, all study information intended for prospective participants was developed in an accessible easy-to-read format, containing visual images to enhance comprehension, and validated with Citizen Advisory Panel. To support informed consent, prospective participants were provided with accessible easy-to-read recruitment packs, which comprised of: (1) an accessible letter from the study's Principal Investigator addressed anonymously to prospective participants to introduce the study, (2) an accessible participant Information Leaflet providing details about the study and contact information, should they have any questions, (3) an accessible expression of interest form and (4) an accessible easy-to-read consent form. Questionnaires to gather quantitative data and a template of questions to guide focus groups were developed by the team at Trinity College Dublin. Full ethical approval for this research was obtained from all institutions' ethics committees.

2.2 | Recruitment

In cooperation with collaborating disability services across all partner countries in phase 1, accessible online information sessions were available to discuss the aims, objectives and any aspect of the project that required further clarification before the commencement of the research activities. The Lead Team in Ireland followed a rigorous procedure to recruit participants for data collection cocreation activities within collaborating services. The accessible easy-to-read recruitment packs were sent to a nominated facilitator in each service. The nominated facilitator in each country then identified prospective participants, as per the inclusion criteria for the study. The facilitators were responsible for sending the study recruitment packs to prospective focus group participants. If a prospective participant was interested in taking part in the study, they returned a completed

expression of interest form. Upon receipt of the expression of interest, the participant was invited to speak with a member of the research team, who explained the study and answered any questions. If they then decided that they wished to take part, a further meeting was arranged to take place more than 7 days later, to support the new focus group participants in signing an accessible consent form created for the study.

2.3 | Participants

Data were obtained via a multicountry recruitment process from Ireland, Sweden, the Netherlands and France as these were the participating countries in phase one of the project. Throughout the research, we faced challenges in collecting comprehensive data for two of the four countries due to the unpredictable restrictions imposed by the COVID-19 pandemic. For this reason, the researchers from France and Ireland collected most of the data. Despite the limited questionnaire data collected in Sweden and the Netherlands, the authors made a conscious decision to include them in the analysis. This choice was based on the belief that even with limited data, the insights derived on qualitative data could provide valuable context and contribute to the overall understanding of our specific research topic. We acknowledge the potential limitations that this introduces and suggest readers to interpret findings related to these countries having gained this knowledge. Future research endeavours will aim to fill these data gaps when such restrictions are not a factor.

A total of 216 people with intellectual disabilities took part in cocreation focus groups. As can be seen in Figure 1, 109 identified as female and 103 identified as male. Four people did not disclose this information to researchers.

Participants in focus groups ranged in age from 19 to 76 years, with an average age of 34 years for Irish participants, 41 years for French participants, 39 years for Swedish participants and 37 years for Dutch participants. Criteria for participation were set as participants having a

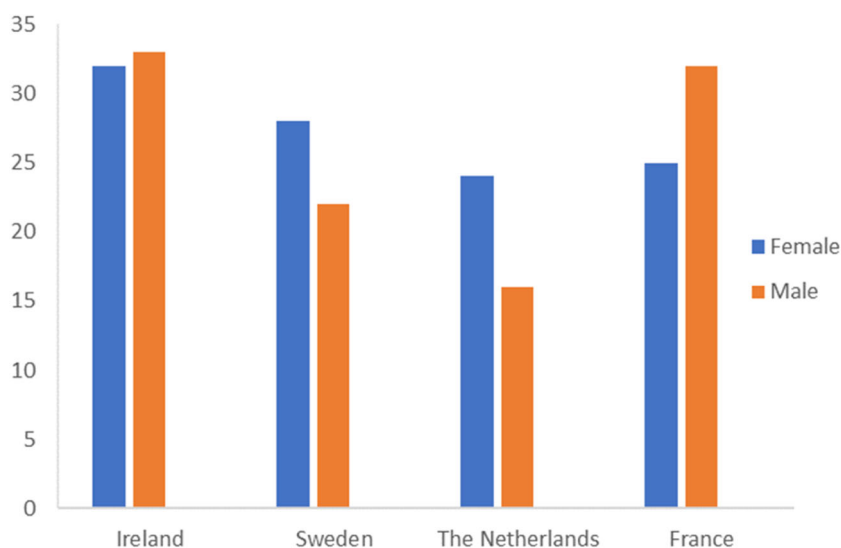


FIGURE 1 Gender distribution of focus group participants.

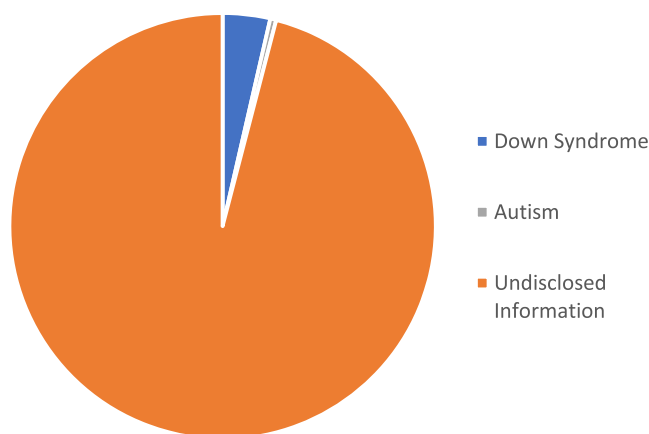


FIGURE 2 Intellectual Disability Aetiology as reported by Focus Group Participants.

diagnosed intellectual disability, accessibility needs and an interest in technology. Participants who took part in cocreation focus groups had mild to moderate levels of intellectual disability. As can be seen in Figure 2, most participants selected 'Other' as the aetiological source of their intellectual disability. All participants had varying levels of digital competency and communication abilities. Most participants reported that their primary residence was their family home (Table 1).

2.4 | Procedure

The first phase of the study was content codevelopment and platform design. This phase comprised of focus groups. These groups were consulted for the platform development and for cocreating DigiAcademy education content. Focus groups were made up of approximately 6–8 individuals with an intellectual disability. These groups were facilitated both online and in person. Due to COVID-19 restrictions, in Ireland, Sweden and the Netherlands, all focus groups were arranged online; in France, many of the focus groups were arranged in person with smaller groups in attendance. Focus group discussion centred on health and social needs, how technology is currently used to support these goals and what helped or hindered the participant's use of technology.

To guide the focus groups and interviews, and to ensure that core digital literacy skills were addressed, the Digi-ID team developed a framework for data collection as a guide for cocreation activities. By developing these tools, the lead team aimed to promote a systematic and consistent approach to running focus groups and recording data from all groups in each partner country. In this way, these tools were integral to the ongoing project. The data collected using these tools have helped to establish the direction and focus of the content included in the DigiAcademy educational programmes and have shaped the content and design of the app.

Within each of these overall themes, a structure of subthemes and prompts was developed for the focus group guide to elicit the depth of information required. These subthemes were reflected in

TABLE 1 Health information.

Concern	Rating	Ireland	France
Health	Excellent	20	34
	Very Good	21	12
	Good	13	11
	Fair	3	
Mental health	Excellent	17	28
	Very Good	22	12
	Good	15	15
	Fair	3	2
Eyesight	Excellent	12	35
	Very Good	23	9
	Good	11	6
	Fair	7	7
	Poor	3	0
Hearing	Excellent	29	45
	Very Good	14	7
	Good	12	4
	Fair	1	1
	Poor	1	0
Communication	No difficulty	35	42
	Some difficulty	20	13
	A lot of difficulty	0	2
	Cannot	1	0

the data framework to promote consistency and facilitate a more systematic approach to data analysis, between focus groups within each region and between each partner. Codesign methodology adopted an iterative back and forth process of engagement between findings from focus groups, monthly Citizen Advisory Panel meetings and user testing sessions.

2.5 | Data analysis

Data from all countries involved in phase one of the project have been included to ensure a comprehensive analysis. Data collection from both Ireland and France's questionnaires provided valuable general health information. Additionally, reports on digital technology were collected by the researchers in Ireland, France and the Netherlands. While the team from Sweden did not contribute extensive quantitative data, its significant input is reflected in the qualitative data from focus groups. Data from focus groups were transcribed by the research teams in each country using the tools developed by the team in Ireland. Findings from focus group transcripts were analysed using thematic analysis

(Braun & Clarke, 2019) to focus on the data rather than on pre-defined categories and take participants' perspectives into account when coding and identifying themes and sub-themes. The last author read and familiarised themselves with the transcript and identified the codes. The first author, the principal investigator, reviewed and validated the coded transcript. Any discrepancies between the first and last author were addressed until a final set of codes was agreed on. Following this, both authors conducted a classification and definition of the categories by grouping codes in terms of differences and similarities and by underlying quotes (Braun & Clarke, 2019; Graneheim & Lundman, 2004; Thomas & Harden, 2008). This process led to the definition of two key themes in relation to the codes: Technology for Health and Going Online for Social Inclusion. The final themes and subthemes identified by the first and last authors were reviewed, and a selection of them were crossreferenced with peers within the research community working in collaboration with people who have an intellectual disability (Brantlinger et al., 2005). Lastly, the second author reviewed themes and subthemes. In the current paper, we will focus on findings from Theme 1, Technology for Physical Health, and Theme 2, Technology for Mental Health. The main results of data derived from focus groups in Ireland, Sweden, France and the Netherlands from 2021 will be analysed.

3 | RESULTS

In this section, analyses of quantitative and qualitative findings from questionnaires are presented and qualitative findings from focus groups and interviews conducted with more than 200 participants with intellectual disabilities are presented.

TABLE 2 Isolation and loneliness.

Concern	Response	Ireland	France
Loneliness during COVID-19	No/never/hardly ever	23	45
	Yes, some of the time	26	8
	Yes, most of the time	8	4
Isolation during COVID-19	No/never/hardly ever	22	39
	Yes, some of the time	29	13
	Yes, most of the time	4	4

TABLE 3 Residence types.

Country	Residence type				
	Family home	Independent/semi	Community group home	Residential care	Supported accommodation
Ireland	44	7	2	3	1
France	32	19	6	0	0

3.1 | Quantitative data: The questionnaires

3.1.1 | Generic health information

Participants in Ireland and France reported on their general health. This information is presented in Table 1. Most participants reported that they were in good physical health, and most participants experienced good mental health as well. More participants noted difficulties that they experienced with their vision, hearing and communication skills in both countries.

3.1.2 | Isolation and loneliness

Participants reported on their experience of loneliness and isolation during COVID-19; results are presented in Table 2. Participants in France reported that they experienced loneliness less frequently than their Irish peers. Conversely, French participants reported that they felt more isolated during this time in comparison to their Irish peers.

3.1.3 | Primary residence

Irish and French participants provided data relating to their primary residence. Information was not provided by participants from the Netherlands and Sweden. Most of the participants from Ireland and France live in their family home. The other most common accommodation was reported to be independent or semi-independent living (Table 3).

As presented in Table 4, French, Irish and Dutch participants provided insight on their use of digital technology. Most participants in all reporting countries informed researchers that they owned their own phones. In addition to this, most participants noted that they used their devices daily. Most participants could access the internet and reported to do so every day. As can be seen in Table 4, most participants in France, Ireland and the Netherlands reported that they used social media. A total of 33 participants in Ireland noted that they did not use technology to search for health-related information, while 28 French participants highlighted the same. Only one participant in the Netherlands did not use technology to search for Health information. Five participants in Ireland reported that they were able to search for health information without additional support, in comparison to 22 French participants and 39 Dutch participants reporting the same. Fourteen participants in Ireland and seven

TABLE 4 Participants' reports of use of digital technology.

Question	Response	Ireland	France	The Netherlands
Own a phone?	Yes	54	52	39
	No	1	5	1
How often use?	Every day	46	51	39
	Once/week	5	4	0
	Less than once/week	2	2	0
Access to computer/laptop/smartphone	Yes	53	50	40
	No	2	6	0
How often use?	Every day	48	46	35
	Once/week	5	3	1
	Less than once/week	1	3	0
Access Internet?	Yes	52	50	40
	No	3	4	0
How often?	Every day	47	47	39
	Once/week	5	3	1
	Less than once/week	1	3	0
Use social media?	Yes	42	47	37
	No	11	10	1
Use social media independently?	Yes, without assistance	28	46	
	Yes, with assistance	16	10	
	No	12	1	
Use tech for health info?	Yes, without assistance	12	29	39
	Yes, with assistance	10	9	0
	No	29	17	1
Search for/understand info?	Yes, without assistance	9	9	37
	Yes, with assistance	19	7	0
	No	19	39	3
Use tech for health?	Yes, without assistance	5	22	39
	Yes, with assistance	14	7	0
	No	33	28	1
Use tech for support services?	Yes, without assistance	15	12	39
	Yes, with assistance	27	5	0
	No	4	39	1
Turn on computer?	Yes, without assistance	32	52	
	Yes, with assistance	18	3	
	No	3	2	
Type name?	Yes, without assistance	38	52	
	Yes, with assistance	18	3	
	No	3	2	

(Continues)

TABLE 4 (Continued)

Question	Response	Ireland	France	The Netherlands
Search topics on Google?	Yes, without assistance	31	51	
	Yes, with assistance	19	3	
	No	5	3	
Are passwords difficult?	Yes, without assistance	10	25	
	Yes, with assistance	27	3	
	No	18	29	
Are government health sites easy to use?	Yes, without assistance	10	30	
	Yes, with assistance	21	7	
	No	23	20	

TABLE 5 Themes and subthemes.

Theme	Subtheme 1	Subtheme 2	Subtheme 3
Theme 1: Technology for Physical Health	<i>I found the text accessible from the easy read booklets. Using technology to look for health/well-being information</i>	<i>I never have used technology to get information about my physical or mental health, but I would be interested in doing this. Using technology to access/use health services</i>	<i>It is important to have a safe space where to ask all the questions about health and well-being. I would like to have a service where you can select somebody there who can go help you with these. What would be most helpful to you using technology for your health and well-being?</i>
Theme 2: Technology for Mental Health	<i>We used Facetime during Covid to link in with our support workers. Using social media to stay connected</i>	<i>You have to know the right sites. Trustworthiness of the Internet</i>	<i>I recently used the voice recording feature on WhatsApp with my friend. I think it is better and easier than sending a text. Accessibility of Social Media sites</i>

participants in France outlined that they could access health information online with additional support.

Twenty-seven Participants reported that they were able to use technology to access support services with additional support in Ireland during COVID-19. Fifteen participants in Ireland reported that they were able to use technology to access support services without assistance, while four participants reported that they could not use technology to access support services in Ireland. In France, 39 participants reported that they did not use technology to access support services. Five participants outlined that they could do so with assistance, and 12 participants highlighted that they were able to use technology to access support services without additional support.

In terms of computer skills, most participants in Ireland and France reported that they could turn on a computer, search for information on topics of interest on google and type their name without assistance.

Passwords posed difficulty for participants in France and Ireland, with 27 Irish participants reporting that they were difficult to use even with assistance, while 25 French participants reported that passwords were difficult to use without assistance. Most Irish and French participants reported that government health sites were either not easy to use, or difficult to use without assistance.

3.2 | Qualitative data: The focus groups

Thematic analysis was conducted on data that emerged from focus groups. Three subthemes were identified arising from Theme 1 and Theme 2 (Table 5). Key findings from cocreation focus groups were collated and connected to these new subthemes. An overview of the results can be seen in a thematic map, as shown in Table 5.

The focus group guide and data framework were structured according to the key themes that were to be explored in the cocreation focus groups, namely, health and well-being; social inclusion and social connection; and cocreating digital skills education. Once identified, these key topics were discussed and validated with CAP members.

3.2.1 | Qualitative results

Following analysis of data from focus groups, two main themes emerged (Figure 3): *Technology for Physical Health* and *Technology for Mental Health*. Further analysis of these themes yielded six subthemes.

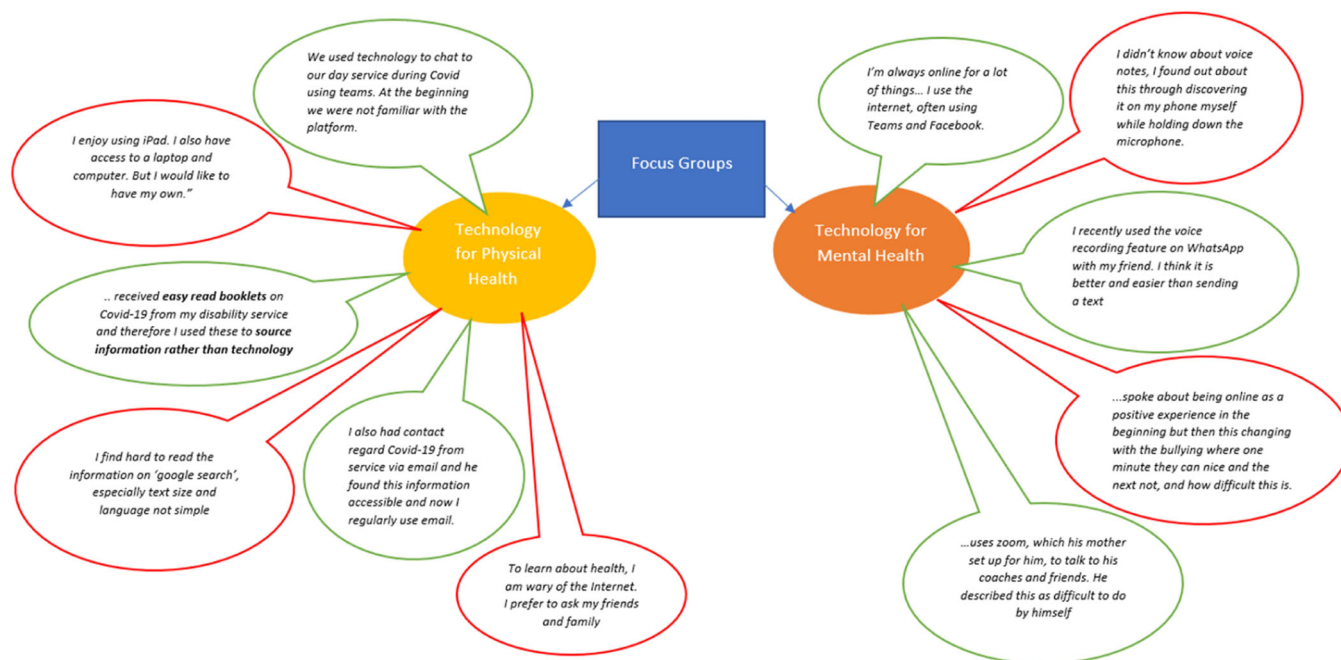


FIGURE 3 Qualitative data themes.

Theme 1: Technology for Physical Health

Barriers and Facilitators were identified within findings relating to physical health. Facilitators to using technology for physical health were identified as support, through social interaction and through easy-to-read documents, as well as engagement. Barriers to using technology for physical health were identified by focus groups to be access to technology, accessibility of technology and the trustworthiness of technology.

To learn about health, I am wary of the Internet. I prefer to ask my friends and family.

People with intellectual disabilities reported during focus groups that they encountered some barriers when trying to use technology to access health information and support their health. One such barrier identified during focus groups was the trustworthiness of information found online. Participants in all countries reported wariness when interacting with online sources and sites. In three of the four countries, there was a government mobile app created to spread information about COVID-19 and the digital storage of individual COVID-19 certificates. In most cases, this app was found to be difficult to access independently and the need for accessible information, in an easy-to-read format, was raised by many participants in all the countries.

During Covid, I informed myself by television, and also by the 'tous anti covid' application. I would compare the two and see that it was the same information.

Additionally, focus group participants indicated to researchers that information provided to them about the COVID-19 pandemic

was difficult to understand. As such, another barrier reported to using technology to access health-related information was the complexity of long text documents and the process to identify trustworthy news sources. Accessibility was also reported to be a barrier for people with intellectual disabilities when using apps developed in Ireland, the Netherlands and France, for tracking and reporting on COVID-19. During focus groups, it was also reported that participants found it difficult to have multiple sources of official information, particularly where there were inconsistencies across information sources.

I enjoy using iPad. I also have access to a laptop and computer. But I would like to have my own.

The last barrier highlighted by the Irish focus groups was access to technology, with many participants reporting that while they could access technological devices, they did not have their own autonomous devices. The access to technological devices was reported to be obtained mainly through family members and community day or educational support services. Digital exclusion during the pandemic posed a significant problem for focus group participants. Some Irish participants informed researchers that it was during the pandemic that they received their first devices, and that was an important achievement for them. However, they also highlighted their recognition that they did not yet possess all the digital skills required to use the devices to the extent that they wanted to. Autonomous digital devices were reported to be more common among Swedish participants. However, several of these participants reported feeling excluded digitally from health-related applications. Most expressed difficulty interacting with 'BankID,' a digital identity application often used for health appointments.

For me it was difficult to understand the number of cases and days they related too in the app, however I found the text accessible from the easy read booklets.

Easy-to-read documents were identified through the focus groups as a facilitator to using technology for health. Participants reported that easy-to-read booklets were crucial to supporting people with intellectual disabilities in accessing technology for health information. In this way, analysis of the findings also highlighted the significant role played by service providers and supporters during the pandemic. Websites with easy-to-read documentation and video call meetings were an especially helpful way to share information about health and about COVID-19.

We used Facetime during Covid to link in with our support workers. To use this, we had support from a family member. We also used Zoom for exercise classes which are provided by their service provider.

Support from family members and key support workers were also reported to be important facilitators to accessing technology for physical health by people with intellectual disabilities. In the findings from Ireland, this need for external support was also confirmed by many supporters and key workers who joined in with focus group activities. Irish, Swedish and Dutch participants required support from staff or family to either join in with online focus groups or to open or close the camera and switch the microphone on or off. This also demonstrates the importance of support from family and caregivers to access the internet and technology for health purposes despite the delicate balance of importance and risks of support as discussed in relation to previous research (Chadwick, 2019; Mikulak et al., 2023). Caregivers can act as both support and gatekeepers to internet access and use by adults with intellectual disabilities; policymakers and practitioners must consider both the positive and potentially restrictive aspects of support to create inclusive digital environments. This support was reported by participants to allow them to engage with technology to further support their health.

Theme 2: Technology for Mental Health

Focus group participants indicated that they frequently used and interacted with online social media applications of all kinds. During focus groups, they also identified barriers and facilitators that they faced when using social media. Like the first theme, support in using and accessibility of these apps were identified as facilitators to using social media for mental health to stay connected with peers and family. Participants reported that access to technology and the trustworthiness of social media applications were barriers to interacting with social media.

I do not use social networks to find information, because already, you must know the right sites.

Participants in focus groups in all participating countries reported wariness around sharing and seeking out information on social media and online in general. Participants spoke of the need to identify trustworthy sources of information. This need was reported to pose a challenge for participants, and they reiterated that the process to identify trustworthy sources and people online made them feel anxious. Participants also highlighted that this anxiety prevented them from using the internet to keep updated.

I didn't know about voice notes, I found out about this through discovering it on my phone myself while holding down the microphone.

Additionally, participants reported that they were not aware of features that made social media more accessible to them, until their peers shared their tips with them in focus groups. This served as another barrier to their interactions with social media. Most participants indicated that they were reliant on support from support workers to learn how to use innovative technology or for help when they ran into technical difficulties.

...spoke about being online as a positive experience in the beginning but then this changing with the bullying where one minute 1 min they can be nice and the next not, and how difficult this is.

The potential for cyber-bullying was also highlighted by participants to be a barrier to interacting with social media in Ireland, Sweden, France and the Netherlands. Additionally, the Irish groups identified pro-active strategies to tackle the issue of cyber-bullying within the service context as well, namely, speaking to a support worker to make sure that they were informed of what was happening. Two participants in Ireland also mentioned how their parents did not want them to use the social media or to have a Facebook or TikTok account because of cyberbullying, privacy and other risks and one participant also mentioned receiving suggestions from close friends and peers to not use Facebook because of dangerous and rude people.

Facilitators to going online and using social media were also identified by focus groups.

I'm always online for a lot of things... I use the internet, often using Teams and Facebook.

All participants reported that they used social media for multiple purposes, such as to interact with friends and family and to research topics of interest. Focus groups allowed participants to discuss with their peers the ways in which they used social media and how they made it accessible for each other during their online meetings. As was expected, social media sites were considered by the groups as being an important aspect of everyday life to stay connected and in touch with family and friends they could not see. The participants' ability to interact with and use these sites should

be noted, as some Irish participants described difficulties accessing social media sites without support.

I recently used the voice recording feature on WhatsApp with my friend. I think it is better and easier than sending a text.

Innovations in accessibility and innovative technologies were also highlighted as facilitators to using social media by the focus groups, particularly the use of Voice notes by the Irish groups. Voice notes were said to be useful as they were 'easier' to use than traditional instant messaging. This was noteworthy to researchers since there are concerns over accessibility features of digital media, and new developments are making these platforms more inclusive, thus furthering social inclusion. Despite this, Irish participants also spoke of the fact that they had not discovered voice-note features, often until they took part in focus groups. This highlights the importance of sharing knowledge to increase value and engagement in social media and illustrates how vital the cocreation and codesign process was for this project.

4 | DISCUSSION

In this section, a discussion of the findings is presented.

4.1 | Questionnaire data

Participants in France and Ireland provided insight into their daily interactions with digital technology. Most questionnaire respondents noted good overall physical and mental health. Most participants experienced good vision, hearing and communication skills. Many participants in Ireland and France reported that they found specific tasks within digital technology difficult to complete without additional support, such as using passwords or accessing search engines to look up topics of interest. Most of the respondents reported that they lived in their family home, which may have influenced their reported levels of loneliness and isolation. French participants reported that they felt more isolated in comparison to their Irish peers, and Irish peers reported that they experienced more loneliness when compared to their French peers.

The questionnaire responses highlight that people with intellectual disabilities are interacting with digital technology on a regular basis, as has been found in previous research. The questionnaire responses also indicated that people with intellectual disabilities can find it difficult to engage with these technologies and sites without additional help from family members or supporters. This is also consistent with previous research that has found that people with intellectual disabilities use digital technology to a lesser extent compared to peers without an intellectual disability (A Burke, 2021; Chadwick et al., 2022; Kaplan & Haenlein, 2010; Sorkin et al., 2021; Spassiani et al., 2023).

4.2 | Thematic analysis: Focus groups

4.2.1 | Technology for physical health

Internet access was identified as an essential skill for people with mild to moderate intellectual disability. The necessity for this skill was further emphasised during the COVID-19 pandemic. As demonstrated in the research and found within the current study, internet access can assist in fostering well-being, support health and can also function as an enabling factor for independence for people with intellectual disabilities (Barlott et al., 2020; Chadwick et al., 2016; Chiner et al., 2017). The findings add to the research and demonstrate how effective internet usage and access is still low among people with intellectual disabilities (A Burke, 2021). Adults with intellectual disabilities have also been identified as more vulnerable to online risks compared with adults in general (Chiner et al., 2017) and as a group that takes more risks when using the internet (Chadwick et al., 2016). The vital needs of support and empowerment to enable effective internet access were also identified by our findings and are consistent with other research (Midgley et al., 2022; Simpican et al., 2015). Additionally, the current study demonstrated the need for accessible training on safe and effective internet usage across the participating European countries.

The results demonstrated how technology can be useful when taking care of one's own health, for example, by searching for health information, using health applications, making health care appointments or meeting with a doctor online. All the countries that participated identified huge challenges in the management of health care appointments and meeting with health care staff, especially online.

Our findings and the literature demonstrated that a growing number of people with intellectual disabilities are using devices and technology, especially after the COVID-19 pandemic, and this has caused them to interact with many benefits relating to their well-being, such as through accessing information (A Burke, 2021; Caton et al., 2022; Chadwick et al., 2016; Chadwick et al., 2022; Jude et al., 2021; Midgley et al., 2022; Simpican et al., 2015). However, our findings also revealed that younger people with intellectual disabilities often use technology more and for a broader range of purposes than older people with intellectual disabilities. This is consistent with the findings reported by other research in this field and the main reason identified for this is that younger people have been raised in a digital age and therefore are more used to interacting with technology in their everyday life, resulting in higher access, use experiences and skills (Caton et al., 2022; Jude et al., 2021).

Most focus group participants reported that they had not experienced online health care appointments during the COVID-19 pandemic. Most participants highlighted that in their experience, health appointments were managed by their relatives or support workers for them, rather than being independently navigated, whether online or in person. While full independence is not always feasible or desirable for everyone, it is essential to recognise that empowerment can take various forms. With the Digi-ID programme,

following these findings, we are committed to building digital literacy skills to create independence where possible and also considering how people can actively participate in managing their health, even with necessary support. This digital divide for people with intellectual disabilities and its effects on their health and well-being were exacerbated by the COVID-19 pandemic (Chadwick et al., 2022; Graneheim & Lundman, 2004; Spassiani et al., 2023), when all citizens were reliant on technology to maintain health, well-being and social appointments and activities. Overall, the use of digital technology to improve health by this group was limited, although research shows that eHealth provides new opportunities to deliver interventions targeting people with intellectual disabilities (Selick et al., 2022; Sorkin et al., 2021).

4.2.2 | Technology for mental health

Social media can be defined as '...a group of Internet-based applications that...allow the creation and exchange of User Generated Content' (Kaplan & Haenlein, 2010). Therefore, this definition encompasses platforms like YouTube, Snapchat, Meta and so on, where users are the ones generating the content accessed by their peers. It is clear from focus group participants that people with intellectual disabilities are accessing these sites and using them to meet multiple needs, including mental health around staying socially connected.

It was evident that across various aspects of technology use, the recurring theme was the indispensable role of external support—from family members, peers or supporters for individuals with intellectual disabilities. This support was not only critical for technology engagement but also influenced the quality of their experiences. This is also consistent with findings from previous research, such as that carried out by Chadwick et al. (2022). Participants also reported anxiety over online safety, particularly when it came to understanding the trustworthiness of information, as well as fear of online harassment. Fear of online harassment and the potential ill-effects that being online or using the internet for too long have also posed difficulty for participants in previous studies (Caton et al., 2022; Chiner et al., 2017). As such, these findings are also in line with previous research (Caton et al., 2022; Chadwick et al., 2022; Chiner et al., 2017). Fear of online harassment was reported from family and supporters' perspectives in previous studies as well (Chadwick et al., 2016; Chiner et al., 2017). While these barriers were identified by the international participants, facilitators were also pointed out to researchers.

Support, whether from peers, family or community supporters, was indicated to be a facilitator to accessing social media and digital technology independently. Similarly, this was also found by results from questionnaire data, further reinforcing the importance of support to this study's participants. Only very few participants described how their parents forbade them from using Facebook and other social media or peers suggested them avoid the use of social media, perceived as a dangerous environment with many risks for vulnerable people. These findings highlight, like in other research (Caton et al., 2022; Chadwick & Buell, 2023; Chadwick et al., 2016;

Chadwick, 2019; Midgley et al., 2022; Mikulak et al., 2023), how caregivers sometimes can act as both support and gatekeepers to internet access and use by adults with intellectual disabilities, showing the delicate dynamics between parents, individuals with intellectual disabilities and paid staff on digital inclusion and how this influence the digital literacy process. As we navigate this delicate balance, policymakers and practitioners should consider both the positive and potentially restrictive aspects of support to create inclusive digital environments and focus on educating and supporting people with intellectual disabilities but also their caregivers on how to be safe online and how to promote digital inclusion while being aware of its risks.

To support this challenge, our Digi-ID programme education content focuses on accessibility and safety features and functionalities in mainstream education. Since our programme's inception, we have designed and led with our Citizen Advisory team (Murphy, Shiels, et al., 2022) several inclusively designed online and in-person events to advocate and promote positive digital skills building and awareness raising of online safety issues, partnering with disability service providers and government bodies. Our programme is also actively codesigning new education on online safety and AI (Artificial Intelligence) literacy to ensure that our community of learners with intellectual disabilities can navigate the digital landscape confidently and securely.

From focus groups, peers reported on how they were able to teach each other new ways of using and engaging with social media, such as the use of voice notes. In much the same way, aid from community supporters was also identified as a facilitator to accessing social media sites, such as Zoom. Caton et al. (2022) found in their study that people with intellectual disabilities had a personal stake in taking part in online activities for social inclusion, with 72% of their participants reporting that they were either 'keen all the way through' this study or '...not keen at first but am now' to take part in online activities. This study suggested that internet usage holds value for people with intellectual disability to engage with their social connections (Caton et al., 2022). Spassiani et al. (Spassiani et al., 2023) also highlighted the importance of engagement with digital technology to support social inclusion. They found that once the participants were supported in engaging with social media, they were able to create and maintain their own digital communities. This proved especially helpful to their participants during the COVID-19 pandemic, as they were able to participate online in activities and feel socially connected with their peers through these activities (Spassiani et al., 2023). This study reiterates the importance of being online to be able to engage with social activities, like workshops and classes, from support groups. Participants in Spassiani et al.'s research were supported by their peers to engage in these online activities through video tutorial and peer-to-peer coaching (Spassiani et al., 2023). This once again highlights the importance of support to engage with social media and digital technology.

The current study highlights the importance of support to people with intellectual disabilities to facilitate access to social media. Due to the existing need for this kind of support, it may also be necessary to

acknowledge the need for training to aid service users to learn how to use social media confidently and independently. In doing this, people with intellectual disabilities could learn to use digital technology and social media safely and competently without additional support.

In our findings (themes 1 and 2), a contradiction arose about the trust and usage of online information. This apparent contradiction arises from the dual nature of social media use. On the one hand, participants reported using social media for various purposes, including interaction with friends and family and researching topics of interest. On the other hand, they expressed wariness about the trustworthiness of online information. This seeming paradox can be explained by considering the context and specific information domains and the situation that everyone was experiencing during the pandemic, including people with intellectual disabilities. First, people with intellectual disabilities often face unique challenges when assessing health-related information. Their confidence in evaluating online content could be influenced by factors such as cognitive differences, limited health literacy and reliance on trusted sources (Jones et al., 2020; O'Leary et al., 2018).

Second, the authors would like to acknowledge the exceptional context of the COVID-19 pandemic, which highlighted the dual and opposite role of digital technology for all. Everyone, not only people with intellectual disabilities, faced uncertainty during that period (Monasterio Astobiza, 2021). Technological solutions have gained importance during the COVID-19 pandemic, although digital technology was also the main vehicle for fake news dissemination farther and faster than the truth (Monasterio Astobiza, 2021). Highlighting and recognising shared humanity emphasise that confusion and misinformation were common experiences and challenges that affected everyone.

Health information is critical, and inaccuracies can have serious consequences for everyone and especially for people with disabilities. Individuals with learning disabilities may feel overwhelmed by conflicting information, leading to caution and scepticism on digital technology for health. To address this, with the Digi-ID programme, our mission is to enhance digital literacy tailored to their needs, promoting critical thinking skills, providing reliable resources and supporting autonomy where possible. Autonomy levels play a role in confidence and health information. When individuals feel empowered via ensuring that information is accessible, they can make informed decisions; consequently, their confidence in assessing health information increases. Conversely, when information is not accessible, professional superiority can occur and undermine this confidence. Shared decision-making models can foster trust and confidence; people with intellectual disabilities should be involved in decision-making avoiding dismissive attitudes (O'Brien and Wolfensberger, 2019; Ryan & Deci, 2000).

In conclusion, the need for accessible, consistent and easy-to-read health information from official sources has been identified. This is consistent with research as reported by Chadwick et al. (2022).

In our Digi-ID research programme, we asked participants about their digital skills and their preferences in terms of teaching and learning methods. We learnt that participants with ID identified

watching videos to understand information as the most accessible and enjoyable method other than easy-to-read documents.

We also learnt that they enjoyed seeing people like themselves communicate and act as their tutor, as this enabled them to learn with a peer at a pace that matched their need. The purpose in training peers to teach is to showcase the capabilities of this group and instil ethos of 'see it and be it' and in line with the disability manifesto of 'nothing about us, without us'. The motto 'Nothing About Us Without Us' relies on the principle of participation, and it has been used by Disabled Peoples Organisations as part of the global movement to achieve the full participation and equalisation of opportunities for, by and with persons with disabilities.

At the heart of our Digi-ID programme has been establishing Citizen Advisory Panels, comprised of individuals with intellectual disabilities, who shape, review and validate research work and also train with us as our digital education tutors to lead the programme (Murphy, Shiels, et al., 2022). From our research and validated with our CAPs, video-based teaching and learning were identified as the most accessible means to deliver our education programme. The structure of our video tutorials is such that each course is delivered by a tutor with intellectual disability, in bite-size format; each video includes subtitles.

We also adopted the use of mainstream online video meeting tools, to capture our qualitative research data in our focus groups. This also allowed us to make our findings accessible for communication and dissemination.

Our programme has been recognised by the European Commission as a best practice model for its methods of codesign and impact for European citizens with intellectual disabilities enhanced digital skills literacy and creating inclusive employment. Currently, DigiAcademy is being piloted with disability service provider organisations and in education and training environments to evaluate impact for learners, supporters and organisations.

5 | LIMITATIONS

This study was conducted during the COVID-19 pandemic, where countries within Europe faced unique challenges that have the potential to influence the findings. The pandemic introduced disruptions to data collection processes. Varying degrees of restrictions and health concerns limited the access to participants and data sets. Furthermore, the reports on digital technology from Ireland, France and the Netherlands, while valuable, may not capture the full scope due to pandemic-induced parameters. Additionally, the reliance on qualitative data from focus groups, especially from Sweden, may introduce subjective biases. It is also worth noting that the pandemic itself could have influenced participants' responses and behaviours, given the associated stress and changes in daily routines during a pandemic of this nature. While we have made every effort to account for these limitations in our analysis, readers are encouraged to interpret the findings with these challenges in mind. The COVID-19 pandemic has emphasised the importance of agility and flexibility in

research, but it has also highlighted the potential pitfalls of conducting studies during global pandemics.

6 | CONCLUSIONS

Results of this study suggest that people with an intellectual disability have specific needs when it comes to using and interacting with technology. During the COVID-19 pandemic, priority digital skills were identified. These skills included how to use email (sending and receiving, adding recipients, adding attachments, viewing links and attachments that were received), how to use the internet (navigating a search tool, how to filter search by video/image), how to get started with video calls (scheduling a call, sending links to calls, accessing links sent from others, setting up mic and camera, sharing screens) and how to use the internet and social media safely.

Overall, users reported actively engaging with health professionals independently, connecting directly with the disability services that they were linked with through using email and virtual meeting platforms, and reported enhanced online connections with family and friends. This has resulted in an increase in confidence both in using digital tools and in overall well-being. This is backed up by previous research (Murphy, Shiels, et al., 2022) by Murphy et al. regarding the increased reliance on skilled staff and staff availability to facilitate the meetings and the reaching of the participants.

The requests from people with intellectual disabilities for digital skills training in these identified areas could support the idea of a 'digital divide' existing between people who have an intellectual disability and those who do not. Additionally, by identifying these priority topics through feedback, researchers were also able to pinpoint critical accessibility barriers and facilitators to support the cocreation and codesigning activities for future content creation.

As suggested by research from the team and other researchers, the cocreation and codesign process is essential to guide the development of mobile technology equipment and apps (A Burke, 2021; Murphy, Fiori, & Kelly, 2022; Murphy, Shiels, et al., 2022). By conducting focus groups and user testing sessions, researchers were supported by the community in designing and developing the direction of a potential solution focused on accessible and inclusive digital skills education. In this way, the current study also supports previous research investigating cocreation and codesign in developing technology.

Following these findings, the Digi-ID research team is developing and cocreating with individuals with intellectual disabilities an accessible digital skills education platform DigiAcademy with step-by-step accessible tutorials in both video and easy-to-read formats. The tutorials are focused on how to use technology devices, use social and work applications, be safe online, protect privacy and learn more about technology in general, and the teachers are the members of the Citizen Advisory Panel with intellectual disabilities. To learn more about the project, you can watch this video cocreated with the Irish Citizen Advisory Panel: <https://vimeo.com/783266517>.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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