POLICY BRIEF 5

Longitudinal Data on Children in the Digital Age

COORDINATE
COhort cOmmunity Research and Development Infrastructure Network for Access Throughout Europe

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1 SUMMARY

This thematic Policy Brief has been developed for the COhort cOmmunity Research and Development Infrastructure Network for Access Throughout Europe (COORDINATE) H2020bproject. It provides evidence of how longitudinal studies can deliver high-quality data in a short amount of time and is thus informative about the invaluable role of these longitudinal studies in informing how policies addressing children and young people should be designed during the digital transition.

This Policy Brief presents some of the findings related to children's use of digital devices and exposure to screen time using data from three longitudinal studies: the Étude Longitudinale Française depuis l'Enfance (ELFE), Growing Up in Ireland (GUI), and Growing Up in Scotland (GUS). ELFE gathers data from thousands of French children born in 2011. GUI is a multidisciplinary study that follows the life of two cohorts of Irish children, one including children that that were 9 months old in 2008/9, while the second cohort is made of children that were 9 years old in 2007. GUS investigates the development of three cohorts of Scottish children. The first two cohorts were first interviewed in 2005 and 2006; one cohort included 3-year-old children and the other 10-month-old infants. A third cohort of 10-month-old infants was recruited in 2010 and surveyed from 2010 to 2016.

While ELFE, GUI, and GUS are multidisciplinary studies focusing on several aspects of children's development, this brief focuses on three topics related to their exposure to digital devices: the pattern of usage, emotional wellbeing, and engagement in risky online behaviour. Researchers found that the approach of French children to digital screens in the first six years of their life is associated with their parents' behaviour. In Ireland, the use of digital devices is generally correlated with lower mental health, but differences exist that are related to socioeconomic status. Lastly, while most Scottish children do not engage in risky online behaviours, those that do have worse relationships with parents and peers, as well as lower levels of emotional wellbeing.

The different topics covered in this brief illustrate how concerns about exposure to screens and digital devices have changed over time and with technology. Concerns about exposure to television and screentime, and how this relates to wellbeing, have long existed and the evidence on these topics relates to a range of years. The investigation of risky online behaviour relates to data collected in and after 2017, and this type of concern is increasing with the diffusion of the internet and social media.

The findings presented in this brief show how the research infrastructures that are ELFE, GUI, and GUS, allowed researchers to explore associations between the use of digital devices, and children's development. The initial findings, which are mostly of a descriptive or relational nature, can be the basis for further studies estimating causal effects. With their existing samples of children and young people, the longitudinal surveys that we cite have provided the opportunity to collect data on concerns about exposure to digital devices that change as children age, over time, and with the diffusion of new technologies. An infrastructure with a pan-European dimension would allow comparisons across countries as well as across time and ages, and so be even more valuable. Thus, the examples presented in this brief show the potential value of the proposed GUIDE cohort study, for policymaking during the digital transition.

[1] French Longitudinal Study of Childhood

2 INTRODUCTION

GUIDE is a proposed European longitudinal survey on children and young people's wellbeing. The survey is currently being developed through the COhort cOmmunity Research and Development Infrastructure Network for Access Throughout Europe (COORDINATE) project, which is led by the Policy Evaluation and Research Unit (PERU) at Manchester Metropolitan University (MMU) in the UK, and is funded under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101008589.

The aim of GUIDE is to provide deep, insightful, comparative, and longitudinal data on the wellbeing and experiences of children and young people across Europe. With such data, researchers, governments, and other relevant stakeholders might better understand – and take steps to improve – the life chances, outlook, happiness, and wellbeing, of children and young people.

To understand whether and how GUIDE might have such impact, researchers from the University of Bologna (UniBo) and MMU have developed a series of Policy Briefs. This brief on the topic of the exposure of young people to screen time and digital devices, provides important insights into the usefulness and value-added deriving from longitudinal surveys in providing evidence to address challenges to children's wellbeing that might come from the digital transition.

The remainder of the brief is structured as follows. Section 3 provides a more detailed overview of the studies that provide the evidence that we cite. Section 4 presents findings related to three topics concerning children and the use of screens and digital devices. The topics are: exposure to devices and screen time; use of devices and wellbeing; and, engagement in risky online behaviours. Each topic draws on findings from one of the studies. Section 5 concludes by highlighting why the evidence presented in the brief supports the relevance of the pan-European longitudinal study that GUIDE will be.

3 THE STUDIES

The Étude Longitudinale Française depuis l'Enfance (ELFE) is a French cohort survey jointly coordinated by the French National Institute for Demographic Studies (INED) and the National Institute for Health and Medical Research (INSERM). Starting in 2011, it gathers annual data from more than 18 thousand children, from birth until around 2031 when they will be 20 years old. ELFE is multi-disciplinary in scope, drawing from diverse research fields that include social sciences, health, and environment-health. The survey provides great insights on several themes related to children's digital lives. In 2022, researchers published a study that used ELFE data to explore children's exposure to screens during the first six years of their life. ELFE data allowed the researchers to investigate the correlation between time spent watching television and on digital devices, and parental behaviours.

Growing Up in Ireland (GUI) is a multidisciplinary longitudinal study following the lives of two cohorts of Irish children and young people. The first cohort includes children that were 9 months old in 2008/9, while the second cohort is made of children that were 9 years old in 2007. This latter cohort was interviewed at age 9, 13, 17-18, and 20. Carers and young people always answered questionnaires. Carers of the younger cohort were first interviewed when children were 9 months old, and next at ages 3, 5, 7-8, 9, and 13. Children from this cohort started answering questionnaires when they were 9. The study is led by the Department of Children, Equality, Disability, Integration and Youth (DCEDIY) and the Central Statistics Office (CSO). GUI gathers data about the average time spent on digital devices each day as well as the type of activity pursued with these devices. This allows researchers to explore these topics across cohorts as well as in relation to several dimensions of children's lives that GUI collects data on. In recent years, researchers used these data to investigate the correlation between children's use of digital devices and their emotional wellbeing.

Growing Up in Scotland (GUS) is a Scottish multi-cohort survey administrated by the Scottish Centre for Social Research. Since 2005, GUS collected data from around 15 thousand children and young people divided into three cohorts. The first two cohorts were first interviewed in 2005 and 2006. One cohort included around three thousand 3-year-old children and the other almost 6 thousand 10-month-old infants. Data collection for the former went on annually until age 6 (2008 and 2009) and data were collected each year from the children's carers. Data collection for the latter is still going on and involved only carers until the children were aged 8, at which age the children were also invited to answer questionnaires. A third cohort of slightly more than six thousand 10-month-old infants was surveyed from 2010 to 2016. Data were collected from the children's carers when children were 10-montsh old and around ages 2, 4 and 5. The findings reported in this brief are based on data collected in 2017-18 from the cohort that is still being surveyed. The 2017/18 data collection happened when the children were aged 12. In 2021 the Scottish Government used data from the second cohort to investigate children's engagement in risky online behaviours. GUS data allowed researchers to assess the intensity of these phenomena as well as their association with a series of factors belonging to several dimensions of each child's life.

[2] At the current time (between September 2023 and December 2024) data are being collected while the children are around twelve years old.

4 FINDINGS

This section presents findings related to three topics concerning children and the use of digital devices. The topics are: exposure to devices and screen time; use of devices and wellbeing; and, engagement in risky online behaviours. Each topic draws on one of the three studies described in section 3.

Use of digital screen

In 2022, researchers published a study on French children's exposure to digital devices and video screens during the first six years of their life (Diter and Octobre, 2022). The study responded to the need to assess the extent to which French households respect national recommendations on this topic. Typically, guidelines suggest no exposure to screens up to the age of three and a slow increase in the following three years.

The study used ELFE data on almost ten thousand children born in 2011. Data were collected when the children were aged two, three and a half, and five and a half. They provided information about the time spent with computers and tablets each day, ranging from 0 to more than 60 minutes. Data was collected by self-reported retrospective answers from parents, who also provided information about their own use of digital devices and television. This allowed researchers to explore both children's approach to digital screens in their first six years of life, as well as the correlation with their parents' behaviours concerning the similar devices.

The ELFE data showed that most children had no exposure to screen time via computers or tablets (i.e. excluding television) up to the age of two. After that age, and up to 6 years old, around 4 children out of 10 were still not exposed to these devices, while the others followed different trajectories. Among those who were already exposed, almost two-thirds intensified their exposure, and the others diminished it. Among those who started being exposed to computers and tablets at the age of two, only one out of ten was exposed less than 10 minutes per day on average up to 6 years old. The remaining children were almost equally split between a moderate and quick approach. The former means being exposed to around 10 minutes per day at age 3 and around 20 at age 6. The latter corresponds to around thirty minutes per day at age 3 and around 50 at age 6.

Researchers found that time spent by children on tablets and computers was strongly associated with their parents' behaviour. For instance, children who did not use tablets or computers up to the age of six were more likely to have parents using computers, tablets, or smartphones very rarely for entertainment purposes. Children who watched TV or other screens together with their parents when they were one year old were more likely to be among those who increased their time spent on tablets and computers from age 2 following a quick trajectory.

National policymakers cited these findings to support a law proposal to prevent the excessive exposure of children to screens and digital devices (see Policy Brief 3 in this series).

[3] Parents reported the time spent on digital devices for entertainment purposes on a scale from never to more than 1 hour and 30 minutes each day. The scale used to report average time spent watching television went from never to more than 3 hours each day.

Wellbeing

Two recent studies used GUI data to explore the correlation between time spent using digital devices and children's wellbeing.

One study (Bohnert and Gracia, 2021) used data from both GUI cohorts, those of children born in 1998 and in 2008, interviewed when they were 9 years old. The second study looked at the younger cohort interviewed when its members were 9, 13, and 17/18 years old (Bohnert and Gracia, 2023). Both studies looked at the average daily time spent watching TV and using digital devices and the type of activity pursued (i.e., gaming, leisure, education, social interaction, personal development). Data were obtained through retrospective and self-reported answers provided by children, varying from less than an hour to more than three hours per day. Researchers measured emotional wellbeing through parents' answers concerning the behaviour of their child. The socioeconomic status of each child was classified based on parents' jobs.

The first study shed light on the different behaviours of the two cohorts concerning their use of digital screens, showing that the 1998 cohort spent more time watching TV and spent significantly less time on digital devices for leisure activities. Researchers argued that this may be due to technological development, which made access to digital devices easier for children, as well as the development of several online entertainment platforms. The study supports the claim that an excessive use of digital devices is associated with lower wellbeing, measured by the Strengths and Difficulties Questionnaire (SDQ). The decline in wellbeing was significantly larger for the youngest cohort.

The second study confirms the association between the use of digital devices and lower wellbeing, and provides further insights regarding how patterns relate to different socioeconomic backgrounds. According to this study, the only case in which the use of digital devices is correlated with higher wellbeing concerns children with higher socioeconomic backgrounds spending little time with them. Also, while using digital devices for learning activities is associated with higher academic achievement, this effect is weaker for children from lower socioeconomic backgrounds.

These studies are great examples of the type of research that can be done exploiting multidisciplinary and multi-cohort longitudinal studies that provide data on the amount time spent by children on digital devices and the type of activity devices are used for. The proposed GUIDE survey could provide pan-European data of this kind at a time when the proliferation of screens and digital devices is likely to be more extensive than ever before.

[4] "SDQ measures are assessed by asking the parent to assess the applicability of 25 statements to their child's behaviour with three response options: "Not true," "Somewhat true," or "Certainly true." These 25 responses generate scores on five subscales: (1) emotional symptoms; (2) conduct problems; (3) hyperactivity; (4) peer relationship problems; and (5) prosocial behaviour. Subscales 1–4 are combined to generate a [SDQ] Total Difficulties Score (TDS) and assess overall socioemotional functioning and adjustment, with a minimum score of 0 (indicating the lowest socioemotional problems) and a maximum score of 40 (indicating the highest socioemotional problems)" (Bohnert and Gracia, 2023).

Engagement in risky online behaviour

In 2021 GUS data were used by the Scottish government to investigate children's engagement in risky online behaviour (Pagani et. al, 2021). This study was important due to the increasing time spent online by young people, as well as the rise in online crimes concerning them, such as those of sexual harassment.

Researchers analysed GUS data gathered in 2017-18 from around three thousand children aged twelve. Engagement in risky online behaviour was measured by answers concerning adding to a friend list or sending personal information or media to people never met in person; meeting in person someone met online; doing something that parents would not agree with; or, lying about online behaviour. Thanks to the multidisciplinary nature of GUS data, researchers investigated the correlationbetween these behaviours and factors relating to different domains such as family, peer relationships, and psychology.

The report found that the majority of Scottish children did not engage in risky online behaviours. Less than 10% of children reported engaging in any of them, except for adding someone that they never met to their contact lists, cited by 33% of them. Researchers pointed to several factors correlated with risky online behaviours. Family-level factors have a fundamental role: children taking risky behaviour were most likely to have parents: with lower educational qualifications; that impose fewer rules concerning online activities; and, that have a higher level of conflict with their children. Risky online-behaviours were also correlated with lower-quality of peer relationships and lower life satisfaction.

5 CONCLUSION

The diffusion of digital devices in our society generates important questions about how this could impact children's development. Data from longitudinal studies such as ELFE, GUI, and GUS, has allowed researchers to shed light on this issue.

This thematic Policy Brief illustrates the contribution of these studies to understanding the impact of digital devices on young people across three important dimensions: patterns of usage, emotional wellbeing, and engagement in risky online behaviour. EFLE provided insights into how children (are allowed to) approach digital devices during the early years of their life, and how this relates to their parents' behaviour. GUI data allowed an investigation of the extent to which screen time is correlated with lower emotional wellbeing, distinguishing among children from different cohorts and socio-economic backgrounds. GUS data provided insights into the extent to which Scottish children engage in risky online behaviours, highlighting a link between risky online behaviours and low levels of life satisfaction and emotional wellbeing. These findings, mostly focused on exploring correlations, can provide the basis for further empirical research aiming at estimating causal effects.

The different topics covered in this brief note illustrate how concerns about exposure to screens and digital devices have changed over time and with technology. The investigation of risky online behaviour relates to data collected in and after 2017, and this type of concern is increasing with the diffusion of the internet and social media.

The findings presented in this brief show how the research infrastructures that are ELFE, GUI, and GUS, allowed researchers to explore associations between the use of digital devices, and children's development. With their existing samples of children and young people,these longitudinal surveys have provided the opportunity to collect data on concerns about exposure to digital devices that change as children age, over time, and with the diffusion of new technologies. The important findings of the studies are, unfortunately, geographically limited. This hinders the possibility of assessing whether the highlighted trends are country-specific or not. The proposed questionnaires for the GUIDE cohort study include questions on children's use of digital devices. This pan-European research infrastructure would therefore facilitate the rapid collection of data that could be compared across countries and so enable researchers and policymakers to spot national or regional differences and trends, and understand which policies work best to address specific interregional or international issues. Thus, GUIDE will make it possible for policymakers to craft evidence-based policies to make sure that the digital transition will be well-managed to protect children's wellbeing.

6 REFERENCES

Bohnert, M., & Gracia, P. (2021). Emerging digital generations? Impacts of child digital use on mental and socioemotional risky online across two cohorts in Ireland, 2007–2018. *Child Indicators Research*, 14, 629-659.

Bohnert, M., & Gracia, P. (2023). Digital use and socioeconomic inequalities in adolescent well-being: Longitudinal evidence on socioemotional and educational outcomes. *Journal of Adolescence.*

Diter, K., & Octobre, S. (2022). Les enfants de moins de 6 ans et les écrans numériques: à chacun son rythme, d'après l'enquête Elfe. Available at: https://www.insee.fr/fr/statistiques/6535295?sommaire=6535307

Pagani, S., Gorton, V., Liddell, L. (2021) Engaging in risky online behaviour - prevalence and associated factors: initial findings. Available at: https://www.gov.scot/publications/engaging-risky-online-behaviour-initial-findingsprevalence-associated-factors-age-12-growing-up-scotland-surve