

2022

## Contexts for children's digital citizenship in India, Korea and Australia: A literature review

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[10.25958/ccf2-kp05](https://doi.org/10.25958/ccf2-kp05)

Stevenson, K., Jayakumar, E., Le-Viet, T., Ryu, Y., & See, H. (2022). Contexts for children's digital citizenship in India, Korea and Australia: A literature review. ECU / Centre for the Digital Child.

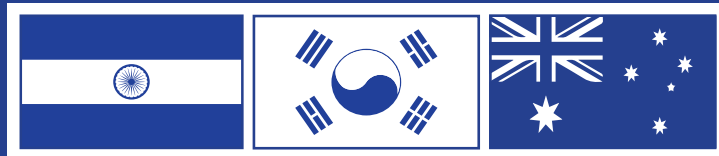
<https://doi.org/10.25958/ccf2-kp05>

This Report is posted at Research Online.

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# Contexts for Children's Digital Citizenship in India, Korea and Australia: A Literature Review



**July 2022**

Australian Research Council Centre of Excellence for the Digital Child  
Edith Cowan University





## Foreword

This literature review is the first outcome of a research partnership between the LEGO Group, the Australian Research Council (ARC) Centre of Excellence for the Digital Child and Edith Cowan University (ECU). This literature review provides the background for further stages of the project, including roundtables with child and adult stakeholders, and subsequent reports synthesising the outcomes of these roundtables, the literature and research findings.

### ARC Centre of Excellence for the Digital Child

The Australian Research Council Centre of Excellence for the Digital Child is the world's first research centre dedicated to creating positive digital childhoods for all Australian children. The Centre is funded by the Australian Government through the Australian Research Council, in addition to contributions from sector partners. The Centre's research innovates and intersects across fields of health, education and technology to offer a holistic view of young children and their digital experiences. Centre for the Digital Child researchers are a collective of nationally and internationally renowned scholars with expertise in a range of disciplines, including education, health, developmental science, psychology, sociology, digital technologies and media and communication. The Centre's partnerships with government agencies, technology developers, education sectors, policy makers and community groups help to incorporate real-world insights and closely link Centre research to a wide range of real-world applications.

### Edith Cowan University

Established in 1991 and located in Western Australia, ECU is ranked in the top 2.5% of universities in the world, according to the *Times Higher Education World University Rankings*. ECU's research profile builds on a well-established reputation for high quality teaching, having been the number one public university for teaching quality in Australia (out of 39 Australian universities) for the past 14 years. ECU's rising calibre as a teaching and research institution has also been recognised by its inclusion in the Times Higher Education (THE) Top 100 under 50 list, which distinguishes a new breed of younger universities on a fast track to achieving world class status. ECU's research leverages its unique geographical location, tying the natural environment to the built environment, and is also at the forefront of shaping our digital future, addressing the challenges of the digital revolution.

### The LEGO Group

The LEGO Group was founded in 1932, and is a privately-held, family owned company headquartered in Billund, Denmark. The company's vision is to be a global force for learning through play, and believes that play has the power to transform a child's life. To continue helping children reach their full potential through the development of important cognitive and physical skills, the LEGO Group is committed to innovating LEGO play experiences. A key area of innovations is inspired by the recognition of digital skills as an important 21st century skill for children to thrive in the future. Recent innovations by the company in this area includes the incorporation of digital elements within physical play, development of digital play experiences, and introduction of tools and resources to help build digitally smart children and families who are able to maximise the benefits and minimise risks in their digital experiences. This research project is supported by the LEGO Group's Asia Pacific regional headquarters in Singapore and is designed to enhance the LEGO Group's efforts at bringing the power of learning through play to many more children across the globe, including the Asia Pacific region.

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Parts of this research were supported by the Australian Research Council Centre of Excellence for the Digital Child through project number CE200100022.

The research team would like to thank the following ARC Centre for the Digital Child chief investigators for their advocacy and mentorship of this project:

Professor Lelia Green (ECU)

Associate Professor Lennie Barblett (ECU)

Associate Professor Karen Murcia (Curtin University)

The research team would also like to extend their sincere appreciation to the LEGO Group and Zhen Yi Ng (Senior Manager, Government and Public Affairs APAC) for their support and partnership of the project.



## Research Ethics

This literature review is part of a study approved by Edith Cowan University Human Research Ethics Committee (Approval # 2022-03255-STEVENSON).

### **Suggested citation:**

Stevenson, K., Jayakumar, E., Le-Viet, T., Ryu, Y., & See, H. (2022). Contexts for Children's Digital Citizenship in India, Korea and Australia: A Literature Review. ECU/Centre for the Digital Child.

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## Executive Summary

Children's digital citizenship today: In an increasingly digitised and technically mediated world, an individual's digital citizenship, or "ability to use digital technology and media in safe, responsible and ethical ways" (DQ Institute, 2019) has never been more relevant, particularly when it concerns our youngest digital citizens. Navigating online spaces safely and confidently are skills fundamental to a modern individual's social and emotional development, education, work and play. A digital citizen's abilities, however, are greatly impacted by notions of access; not just physical access, but also access mediated culturally and socio-economically. Less is known about very young children's experiences of digital citizenship, and with recent pandemic related events accelerating a move to even greater online engagement, challenges posed to children's digital citizenship development require thoughtful, child-led, culturally nuanced, and research-based solutions.

### OVERVIEW

This literature review supports research investigating digital safety and digital citizenship through multistakeholder collaborations in three countries—India, South Korea, and Australia. Performed by an Edith Cowan University-based research team from the ARC Centre of Excellence for the Digital Child, and in partnership with the LEGO Group, this research additionally responds to many recent policy and practice reviews arguing for institutional and policy engagement in the Asia Pacific (APAC) building children's digital safety, literacy and citizenship; for example, the UNESCO data-driven report, Digital Kids Asia Pacific (DKAP): Insights into Children's Digital Citizenship (Shin et al., 2019), an earlier UNESCO review of policy, Building digital citizenship in Asia Pacific through safe, effective and responsible use of ICT (UNESCO, 2016); and a UNICEF scoping paper, Digital Literacy for Children (Nascimbeni & Vosloo, 2019). These reports highlight the importance of stakeholders engaging with new ways to foster digital literacy and digital citizenship.

This research acknowledges the concept of digital citizenship as it is embodied in LEGO's Raise Digitally Smart Families guides (LEGO, 2021a, 2021b, 2021c, 2021d, 2021e, 2021f), underpinned by the DQ Intelligence Common Framework for Digital Literacy, Skills and Readiness (DQ Institute, 2019). This concept is applied as a lens to critically examine what children say about their digital experiences, and what policy makers and industry say about young children's digital safety, and the regulations that impact this.

Literature materials were explored across three vastly different geographic and socio-economic landscapes revealing varied understandings of digital citizenship. In each country reviewed, digital access is heavily influenced by mediating factors including culture, gender expectations, class system and socio-economic factors affecting access to devices and networks.



## INDIA

India is still developing much of its digital capacity, both in terms of reliable internet connection and in terms of its population's wealth distribution, which significantly effects its poorer (generally rural) citizens' digital literacy and capacity to afford digital devices. The Indian government has invested heavily in its citizens' basic digital literacy education, particularly to build literacy amongst the poorest families in rural areas. Global effects of the COVID 19 pandemic saw a significant push for available online educational resources for children, with varied results, as many rural schools have minimal access to the internet and devices. The majority of network subscribers in India are male, and the majority of users access the internet with a smartphone. Sharing one device amongst multiple family members is common, and so children have heavily mediated access to a device in the home, particularly girls, who are more restricted in their access to the internet than boys. The literature suggests digital citizenship in India focuses on basic literacy and skill development for education and future employment, with greater emphasis on the dangers of online spaces than the affordances they may offer young people such as fun, creativity and critical thinking skills.

## KOREA

In the Republic of Korea users have ready access to reliable internet connection, with almost 100% of modern Korean youths owning a smartphone. Most of the population over three years of age have access to the internet for an average of two hours per day, and this combination of ready access to network and devices leads to a focus within Korea concerning the prevention and reduction of risk, particularly that of internet 'addiction'. This being said, there is room for improvement within Korean education and guidance for young children with such ready access to online spaces, particularly in regards to safety and protective behaviours. The Korean government have introduced significant 'master plan' initiatives to combat perceived addiction challenges, whilst also focusing on children's rights within digital media (a protectionist approach), highlighting cases where young people's time spent on online spaces led to stress, privacy violation, and lack of sleep. School programs support protectionist approaches to addictive nature of internet connected devices and awareness of cyberbullying via social media platforms and chat apps.

## AUSTRALIA

According to the DQ Institute's *Child Online Safety Index* (or COSI), Australia is the second safest country in the world for children accessing and participating in online spaces (DQ Institute, 2020). Australian children have a greater range of device access both at home and in school, and earlier digital access in life indicating greater opportunity

for digital literacy fluency, than countries of the Global South, such as India. Australia has their own government appointed and richly resourced eSafety Commissioner, and several educational initiatives backed by state and federal governments, including: the NSW Education Department's Digital Citizenship website; the addition of Digital Technologies (including units on digital citizenship) to the national curriculum stream supported by the online Digital Technologies Hub; the Gonski Institute's Growing Up Digital Australia longitudinal study; the establishment of the Australian Research Council's Centre of Excellence for the Digital Child. This variety of initiatives facilitates a comparatively more holistic standard of access and education to resources supporting digital citizenship than even the more comprehensively connected Republic of Korea. The literature reviewed presents a broader and more nuanced approach to children's digital lives, encompassing both a focus on protective behaviours online, but with an added focus on ethical and kind behaviour, and fun and creativity.

### KEY ISSUES ON COMMON

Despite these differences, an immersion in this literature also reveals commonalities. Firstly, the COVID 19 pandemic has accelerated the need for children to be able to access online learning materials, as well as participate in virtual classrooms. This has challenged children's existing skill base across the board in terms of the efficacy of online materials and children's capacity to be fully engaged for longer periods of time as learners in these mediums.

Secondly, countries do not demonstrate a universal understanding or definition of citizenship, let alone digital citizenship. These understandings are generally culturally contextualised and reflect a greater sense of young children as less visible research participants. (Most surveys reflect older youth and adult participants as well as mediated or parent/guardian perceptions of their children's experiences).

Thirdly, despite greater access than ever before to online spaces, many children's experiences as digital citizens have not involved a focus on more sophisticated elements of citizenship such as critical thinking and ethical behaviour. Questionable perceptions of children as more naturally skilled in technology use due to their immersion from an early age are also challenged, with a focus on the need for adequate and thorough training for all people within digital realms.

In conclusion, the research that this literature review supports may be seen as an opportunity to encourage policy and industry influencers to take a balanced approach to children's use of technology. This approach should consider children's online safety, risk and competencies. At the same time, the approach should encourage stakeholders to take responsibility in areas that engender risk to minimise harm whilst supporting children's digital resilience.



## Introduction

This Literature Review supports research investigating digital safety and digital citizenship through multistakeholder collaborations in three countries—India, South Korea, and Australia, performed by an Edith Cowan University based research team from the ARC Centre of Excellence for the Digital Child, in partnership with the LEGO Group. The first stage of the research project, *Digital Safety and Citizenship Roundtables: Using consultation and creativity to engage stakeholders*, is this investigation of the literature—related to policy and education contexts for digital citizenship in the three countries. The concept of digital citizenship as it is embodied in LEGO's *Raise Digitally Smart Families* guides (LEGO, 2021a, 2021b, 2021c, 2021d, 2021e, 2021f), underpinned by the *DQ Intelligence Common Framework for Digital Literacy, Skills and Readiness* (2019) is applied as a lens in the project to critically examine what children say about their digital experiences, and what policy makers and industry say about young children's digital safety, and the regulations that impact this. This research additionally examines what corresponds with the LEGO Group's materials, and DQ digital citizenship materials, and what gaps are revealed in collaborative stakeholder roundtable conversations by engaging with two groups of stakeholders: firstly, children aged 3–13; and secondly, policy influencers and industry. In roundtable discussions underpinned by research, child and adult stakeholders will be engaged in collaborative conversations to gain specific insights about the three countries' approaches to young children's digital safety and citizenship (including regulation), with the aim to support a balanced approach to children's lives online.

By identifying and reviewing government and educational curriculum resources, academic literature and blogs, and NGO materials, this literature review addresses the research question: *What are the current policy and educational contexts, and implications of previous surveys, for developing digital citizenship for young children (3–13 years) in India, South Korea, and Australia?* To necessitate a sense of timely relevance and scope, these materials are contained within a relatively recent and short time frame, bounded by the release of the UNESCO Digital Kids Asia-Pacific report (May 2019), and finishing in May 2022. These materials were then cross-referenced with LEGO's digital citizenship competencies as outlined in their *Raise Digitally Smart Families* guides (LEGO, 2021a, 2021b, 2021c, 2021d, 2021e, 2021f), specifically, those deemed by LEGO to be six “key topics related to digital citizenship and online child safety”. These six topics include competencies within the realms of digital privacy, cybersecurity, digital footprint and identity, screentime, digital empathy and critical thinking.

In many cases as research into literature in each country progressed, the timeline boundaries have been stretched where context was needed to allow for significant events in, as one example, larger Government initiatives such as the launch of the Government of India's flagship *Digital India* program in 2015, and subsequent run-on developments of this program that are ongoing and influential. In a country such as Australia, where the wealth of material was abundant, for example the extensive library of materials provided by the eSafety Commissioner, a review of the broader content of the website and tabs/pages are included, with a relevant URL link embedded within each individual webpage reference. South Korean materials were less accessible in English language versions and so necessitated a broader approach, with limited ability to cross reference as much material. The following literature was explored across three vastly different geographic and socio-economic landscapes and, as such, also revealed many varying and nebulous understandings of what constitutes digital citizenship. This review acknowledges that a singular definition of digital citizenship is still an ongoing and developing concept in much literature that discusses citizens' engagement in online worlds, and thus begins with but a few of these global definitions from relatively simple to rather intricate explorations of the term. Each section of the literature review also features various country-specific definitions of the term digital citizenship. Finally, it is intended that this review provides a broad view of each country's general engagement with digital realms, with a particular focus on younger children, and those individuals and organisations that enable and develop children's ongoing participation.

## Defining digital citizenship: International contexts

In the 2019 *DQ Global Standards Report*, founder of the DQ Institute Dr Yuhyun Park, discusses the emergence of concepts *IQ* (Intelligence Quotient) and *EQ*, (Emotional Intelligence Quotient) immediately after the Second (IQ) and Third (EQ) Industrial Revolutions. Drawing upon founder of the World Economic Forum, Klaus Schwab's proclamation of a *Fourth Industrial Revolution* (2017), Park advocates for the further concept of *DQ* (Digital Intelligence Quotient) to be understood and utilised in order to "address the needs of educational systems, industries, and governments by providing a shared global blueprint to harness technology for a shared prosperous future" (2019b, p. 5). The Digital Intelligence quotient is defined by Park as "a comprehensive set of digital competencies rooted in universal moral values for individuals to use, control and create technology to advance humanity" (2019b, p. 5). Within their *Global Standards Report*, the DQ Institute argues for the need for global standards of understanding and terminology, and sets forth a comprehensive framework for the development of an individual's digital intelligence quotient or DQ, which is further

defined as “a comprehensive set of technical, cognitive, metacognitive, and socio-emotional competencies grounded in universal moral values that enable individuals to face the challenges of digital life and adapt to its demands” (2019, p. 12).

The DQ Institute's *Global Standards Report* (2019), and the *Common Framework for Digital Literacy, Skills and Readiness* within, contain a valuable synthesis of methodologies from 25 international organisations, universities and corporations including frameworks proposed by the UK Council of Child Internet Safety's (UKCCIS) Education for a Connected World, British Columbia's Digital Literacy Framework, the United Nations Educational, Scientific and Cultural Organization (UNESCO), Mozilla Foundation's Web literacy map, Common Sense Media's K-12 Digital Citizenship Curriculum, and MediaSmart's Classroom Guide and Microsoft's Digital Literacy curriculum (2019, pp. 56–58). According to DQ's framework, Digital Intelligence (or DQ) may be conceptualized as an umbrella term for organizing digital skills, readiness and literacy across all sectors and demographics, and is broken down into three advancing levels of 'Maturity': Digital Citizenship, Digital Creativity and Digital Competitiveness. These maturity levels are presented graphically as a very young child climbing three advancing steps of skill maturity, implying that digital citizenship is expressed as the entry level for a very young person—although arguably this may also apply to any beginner of any age. The DQ Institute additionally identify “8 Areas of Digital Life” (2019, p. 13) within which these levels of maturity are expressed. As the first of the three advancing competency levels, DQ defines digital citizenship as “the ability to use digital technology and media in safe, responsible and ethical ways” (2019a, p. 15), and this definition and framework form the key theoretical underpinnings of LEGO's *Digitally Smart Guides* (LEGO, 2021a, 2021b, 2021c, 2021d, 2021e, 2021f).

In a similar synthesis, the Youth and Media (YaM) team at the Berkman Klein Centre for Internet and Society (Harvard University) mapped 16 digital citizenship frameworks including the DQ Institute framework, EU Kids Online, NSW Dept of Education, Common Sense/ Project Zero (US), and UNICEF. They also mapped 19 related media frameworks across a broad cross section of organisations, academia, government and NGOs, including UNESCO, the World Economic Forum, Media Smarts Canada, the European Commission and the Child Exploitation and Online Protection Command (UK), to produce their own sophisticated Digital Citizenship+ (Plus) framework. The YaM team expound upon what they describe as the 'adult-normative' perspective of the digital citizenship term, describing its widespread use as potentially problematic, especially when examined in the context of non-youth driven input. Harvard academics Cortesi et al. of the YaM team argue “do we as decision makers, believe that youth are able to identify as *citizens* and *digital citizens*?” (2020, p. 15), adding a further contextual assessment of children's lives online:



Our own research indicates that—with increased access and potentially more agency and experience related to digital technologies, particularly mobile phones—for many youth, the online and offline worlds are becoming so connected that they are often perceived as just one world. (Cortesi et al., 2020, p. 15)

The YaM team employ their own “digital citizenship+ (plus)” term in order to be more “encompassing of different social, cultural and regional contexts” (2020, p. 18) and to keep the term universal yet flexible. A comprehensive list of 17 areas that currently constitute digital citizenship+, defined as “the skills needed for youth to fully participate academically, socially, ethically, politically and economically in our rapidly evolving digital world” (Cortesi et al., 2020, p. 28) are then usefully clustered into four larger concept groups of Participation, Empowerment, Engagement and Well-being (Cortesi et al., 2020, p. 33).

The significant 2019 UNESCO *Digital kids Asia-Pacific: insights into children's digital citizenship* (Shin et al., 2019) report, involved a comprehensive digital citizenship survey of 5,129 students aged 15 in four Asia-Pacific countries—Bangladesh, Fiji, Republic of Korea, and Vietnam. The report utilises a digital citizenship definition from an earlier UNESCO policy review document, which defines digital citizenship broadly as “being able to find, access, use and create information effectively; engage with other users and with content in an active, critical, sensitive and ethical manner; and navigate the online and ICT environment safely and responsibly, being aware of one's own rights” (UNESCO, 2016, p. 15). This definition also synthesises extensive work by UNESCO in the Asia Pacific region measuring digital competencies such as digital literacy, digital safety and resilience, digital participation and agency, digital emotional intelligence, and digital creativity and innovation. DKAP notes that the utilised framework for its survey was anchored in a rights-based approach, in full recognition of the 1989 United Nations Convention on the Rights of the Child.

From a European perspective, Janice Richardson and Elizabeth Milovidov provide arguably the most comprehensive and nuanced definition in their *Digital citizenship education handbook* (2019), published by the Council of Europe Education Department and produced by the EU Digital Citizenship Education Expert group:

A digital citizen is someone who, through the development of a broad range of competences, is able to actively, positively and responsibly engage in both on and offline communities, whether local, national or global. As digital technologies are disruptive in nature and constantly evolving, competence building is a lifelong process that should begin from earliest childhood at home and at school, in formal, informal and non-formal educational settings. Digital citizenship and engagement involves a wide range of activities, from creating, consuming, sharing, playing and socialising, to investigating, communicating, learning and working. Competent digital citizens are able to respond to new and everyday challenges related to learning, work, employability, leisure, inclusion and participation in society, and respecting human rights and intercultural differences. (Richardson & Milovidov, 2019, pp. 11– 12)

These are but a few of the most recent global definitions amidst sophisticated theoretical frameworks currently utilised by researchers of digital citizenship. An additional valuable survey undertaken by Hong Kong based Laure Lu Chen et al. (2021), tracks the overall trends in digital citizenship publications of the last 10–15 years (including a definition of the term) and states that amongst the 114 peer-reviewed articles identified for in-depth review only 65 defined digital citizenship explicitly. 25 of these 65 adopted a definition provided by educators Mike Ribble & Gerald Bailey in 2007 within the *Digital Citizenship in Schools* series, a North American educational resource series released in 2007 and revised again in 2011 and 2015 (Ribble, 2015). This definition is brief, with Ribble & Bailey defining digital citizenship as “norms of appropriate, responsible behaviour with regard to technology use” (as cited in Chen et al., 2021, p. 10). A following 15 of the 65 utilised a 2007 definition provided in *Digital citizenship: The internet, society, and participation* (Mossberger et al., 2007) which defines digital citizenship as the “ability to participate in society online” and digital citizens as “those who use the Internet regularly and effectively” (Mossberger et al., 2007, p. 1). Chen et al. elaborate that seven of the 65 authors used both definitions, whilst a further 18 used the theories expounded within these definitions to “establish their own theoretical frameworks” (Chen et al., 2021, p. 5). Chen’s valuable analysis shows how broad the definition of digital citizenship was as far back as 2007, whilst highlighting the lack of consensus on a singular definition. Arguably, in recent times the definition of digital citizenship has since been refined and expanded significantly to address the ever-changing nature of global involvement in technology, as the previous examples show. As this review demonstrates, the three countries included in this review also utilise their own definitions and understandings of digital citizenship, from complex to more general, and show that these definitions also offer an insight into the overall focus in each country toward supporting and developing children’s online participation.





## INDIA

### Profile of Indian internet use

Internet usage in India is disproportionately an urban activity, primarily due to reduced access to reliable internet connection and lack of access to digital devices in rural areas (Barman, 2021; Sharma, 2020). Challenges in children's engagement in education brought to the fore by the recent COVID 19 pandemic and systemic school closures have highlighted these issues of access ever further. A recent Indian Ministry of Education (2021) report *Initiatives by the School Education Sector in 2020–21* estimated that between 40 and 70% of school-aged children in seven states (Assam, Andhra Pradesh, Bihar, Gujarat, Jharkhand, Madhya Pradesh and Uttarakhand) do not have access to a digital device, let alone reliable access to the internet, which is as low as 30% in some rural areas (Sharma, 2020; TRAI, 2022). In urban areas and larger capital cities, internet connection capacity is significantly higher (as many as 93% having access in some urban centres), with the vast majority of internet subscriptions (as many as 96%) being for user internet access via mobile or smart phone devices (TRAI, 2022).

### Government and education initiatives supporting digital citizenship

Mass school closures prompted by the COVID 19 pandemic have led to necessary advances in e-learning platforms and resources, including the Indian Ministry of Education-led *Pradhan Mantri eVidya (PM e-VIDYA)*, a comprehensive digital platform initiative which “unifies all efforts related to digital/online/on-air education to enable multi-mode access to education” (2021, p. 8); however, effectiveness of these e-learning initiatives throughout the whole country is difficult to gauge. A Boston Consulting Group report (2022), produced in consultation with the Teach For India foundation and more than 35 non-profit and Edtech companies, cites a telephone discussion survey undertaken by a research team from the Bangalore-based Azim Premji University (2020). In its argument against the questionable effectiveness of online learning tools, this survey study reported the finding that up to 60% of students are unable to access online learning opportunities, further citing findings of poor digital access (both devices and connectivity) for children and families, inadequate and very minimal teacher-learning processes, and an insufficient knowledge of the digital platform in both teachers and students in order to successfully navigate the materials (2020, p. 3). These issues of non-universal access in India, coupled with poor digital literacy, appear to present significant barriers to the ongoing development of children's digital citizenship.

Nevertheless, the PM e-Vidya website includes *DIKSHA (Digital Infrastructure for Knowledge Sharing)* (NCERT, 2017), a portal and mobile application (or app) released in 2017 granting access to a significant repository of eBooks and eContents created by States/UTs and National level organizations. Also featured on the website is *SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds)*, an online portal containing video lectures and teaching materials. Similarly, on the website there are other resources to support digital citizenship such as: *SWAYAM Prabha*, a television channel with comparable content; a *CWSN (Children With Special Needs)* portal with eContent for visually and hearing-impaired students; and, in a commitment to mitigate the effects of limited access to digital devices, the PM e-Vidya also includes extensive community radio broadcasting aimed particularly at school aged children in remote areas.

Though PM e-VIDYA is an initiative prompted by the more recent COVID 19 pandemic, it is part of the flagship *Digital India* program, launched in July 2015 by Prime Minister Shri Narendra Modi, with a vision to transform India into a digitally empowered and knowledge economy. Digital India itself is a smaller sub program within the larger Ministry of Electronics and Information Technology (MeitY), a Ministry encompassing a massive 19 organisations, including the National e-Governance Division (NeGD), along with Government/citizen engagement portal *MyGov* (both NeGD and MyGov are independent business divisions within the Digital India Corporation), the Indian Computer Emergency Response Team (ICERT), and the Education and Research Network of India (ERNET). Of interest, the NeGD website included several reports, of most relevance to this study being the NeGD publication *Digital Wellness and Cyber Security* (2015), which documents the results of the 2015 Digital Wellness Online Challenge (DWOC), presented in line with the launch of the Digital India initiative. This publication documents the events and content of the DWOC and makes a statement in the preface that is in similar language to definitions of digital citizenship:

The objective is to make children, students and the youth aware of how they can maintain digital wellness by taking informed decisions and becoming safe, respectful and responsible users of digital technology. Designed as a fun engaging quiz activity and based on the concept of 'Connect, Compete, Celebrate', the Digital Wellness Online Challenge encouraged students from grades 6-12 to think, decide, and choose an action that ensures their on line safety and security. (NeGD, 2015, p. 6)

The DWOC book is a vibrantly presented publication focusing overwhelmingly on cybersecurity and personal data protection, despite the 'wellness' in its title. The 400 questions posed to students are provided with an answer key and detailed rationale. As far as can be ascertained from the Digital India website, the DWOC was a one-off event, and although the challenge reached a significant number of students (more than 30,000 in total), these were primarily students from private schools in urban centres of India, who constitute roughly only 20% of the population and have easier access to digital media (Banaji, 2015).

Another NeGD initiative, *The Unified Mobile Application for New-age Governance (UMANG)* (2017), an app that gathers several government portals into one easy login, has a specific section for youth and education which is of particular relevance to supporting digital citizenship. With UMANG, students can access *The National Digital Library (NDL)*, numerous grant and school funding/scholarship applications, SWAYAM Pradha and newly linked *Epathshala*—a platform and app that provides textbooks (in user-friendly flipbook format), audio-visual resources, periodicals, supplements, teacher training modules and other materials (NCERT, 2015). These materials go some way to bridge current financial and physical access barriers to resources as there is no limit on viewing or downloading of content. *Epathshala* (NCERT, 2015) is originally a 2015 initiative of the Ministry of Human Resource Development and the Central Institute of Educational Technology (CIET), which is an institute under the larger umbrella of the autonomous organization National Council of Educational Research and Training (NCERT). The most pertinent materials supporting digital citizenship include a comprehensive set of guidelines for teachers, producing eContent (NCERT, n.d [2018]), eContent for children with disability (NCERT, 2021), and PRAGYATA guidelines for digital education, specifically referencing eLearning post the COVID 19 pandemic (NCERT, n.d [2020]). These guidelines are provided not only on the teacher resource tabs, but also on the child tabs, though not as child-user friendly versions, and the contents of the guideline books broach several topics pertinent to digital citizenship development. For example, all three guides provide detailed and vibrantly illustrated instructions or how-to guides for installing the DIKSHA app onto a mobile device, the PRAGYATA guidelines have suggestions pertinent for students about screentime and minor references to kind behaviour towards others online (NCERT, n.d [2020], pp. 24–26). Chapter four (pp. 27–31) focuses on Physical Health and Mental Wellness during Digital Education, with some cursory practical tips for screentime and mental wellness.

## Academic literature specific to the development of children's digital citizenship

Academic literature specific to digital citizenship in India paints a more nuanced picture than revealed by the review of government and educational bodies' programs which focus largely on danger, for example cybersecurity and data protection, and educational resources for online learning. Of the current policy environment regarding digital citizenship, Hyderabad based media researchers Devina Sarwatay and Usha Raman reflect on the lack of evidence-based policy:

Current policies do not insist on evidence-based decision-making or draw on experiences and expectations of a wide range of stakeholders, and clearly, young people's voices are not driving them—nor have they been expected to, in what has largely been a top-down, non-participatory policy process. (Sarwatay et al., 2021, p. 6)

Likewise, media educators and researchers Kiran Bhatia and Manisha Pathak-Shelat argue that without an analysis of how Indian social structures of gender, caste and religion inform children's engagements with digital technology "we risk developing programs and policies that are not grounded in lived realities of children and/or do not reflect their lifeworlds" (2019, p. 260). Many Indian academics also discuss the tendency for literature regarding digital engagement to be heavily skewed toward a Global North (United States and Europe) perspective with little acknowledgement of the Global South and cultural nuance within (Bhatia et al., 2021; Bhatia & Pathak-Shelat, 2019; Sarwatay, 2020). Bhatia argues further that this is a dangerous approach, as "theories generated in the West are often transposed to contexts in the Global South without regard to distinct sociocultural realities, historical, and class struggles" (Bhatia et al., 2021, p. 4757). Anthropologist Payal Arora investigates the root causes of these Global Northern assumptions, primarily grounded in the notion that the newly industrialized and predominantly less socio-economically advantaged or 'developing' nations of the Global South are or *should* be utilizing the internet in predominantly utilitarian ways—for work and socioeconomic advancement—and not for pleasure, whereas usage statistics of the Global South contradict this (2019). Upwardly mobile and poor citizens of India prolifically use digital technology for pleasure—for social media browsing, gaming and romance, albeit in culturally specific and mediated ways (Arora, 2019; Bhatia et al., 2021; Sarwatay & Raman, 2021; Sarwatay et al., 2021).

The richness of recent significant ethnographic studies, such as Bhatia et al.'s engagement with girls aged 11–13 in Bangalore, Delhi and Mumbai (2021), and a previous study performed with MICA professor Manisa Pathak-Shelat (Bhatia & Pathak-Shelat, 2019) concerning children aged 9–12 in the rural Gujarat region of India, provide valuable insights into children and adolescent girls' engagements with digital technology. These studies highlight important cultural contexts including that in India "access to and engagement with media is not only determined by the availability of economic resources but also by cultural norms related to social identities such as religion, caste and the gender of media users" (Bhatia & Pathak-Shelat, 2019, p. 261). Gender emerges as a significant factor affecting particularly Indian girls' engagement with digital technologies. This is primarily due to the overwhelming trend for the male head of each household to be the owner of the internet connected mobile device in the family and, subsequently, the controller of the internet subscription (Bhatia & Pathak-Shelat, 2019). Families in poorer areas of rural India often demonstrate collective online practices and regularly share devices and even social media accounts such as *WhatsApp*. This shared access clearly influences notions of privacy and how and when children interact with their peers and others online. Bhatia reveals that "girls have designed strategies to circumvent the class-gender constraints they face

while accessing, managing, and using digital technologies” (2021, p. 4759). These include creating fake or anonymous social media identities, creating alibis for each other's friends such as 'fake' study sessions where they use digital technologies for recreational use, and negotiated online participation with others (swapping food, money or other bartering for device access or WIFI passwords).

The influence of strong patriarchal management is a recurring theme in the development of Indian children's digital citizenship. Bhatia argues that, for Indian children, this management reinforces “the dominant rationality of patriarchy, caste hierarchy, and religious prejudice” (2019, p. 264); however, Bhatia also notes once again that children enact their own agency in the development of their own negotiation strategies to challenge these power structures and participate online. Sarwatay et al. also acknowledge this adult mediation and children's subsequent coping strategies, and call for a greater focus on digital literacy skills: skills that will allow children to “negotiate a digitally mediated world, in terms of relationships and political and cultural realities” (2021, p. 6). Sarwatay et al.'s study involved a comprehensive survey of adult stakeholders: “parents, teachers, social workers, children's advocates, and others who shape the media environment for young people... who influence meso-level and macro-level policies and practices related to digital media literacy” (Sarwatay et al., 2021, p. 6). In a second study that focused on children's voices (Sarwatay & Raman, 2021), the authors begin with the citation of some valuable statistics drawn from an Associated Chambers of Commerce and Industry of India (ASSOCHAM) report of 2015, which surveyed 4750 parents in major Indian metropolitan cities (as cited in Sarwatay & Raman, 2021, pp. 2–3). Parental responses revealed 95% of teens used the internet daily, of which 81% used social media (Facebook is the most popular), and underage use of social media was rife amongst 65% of children under the Facebook mandated minimum age of 13. Sarwatay and Raman note this kind of survey result fuels many so-called 'technopanic' driven articles on Indian news sites and in the mainstream media (2021); however, they also identify that little research exists that reflects child-centred accounts of potential harmful effects of digital engagements on children in India, arguing further that:

Critical digital literacy must recognize the agency of young people, their naturalized interactions with the digital world, as well as the complexities of family and school life that moderate such interactions. These contextual nuances become significant when framing regulatory policies, parental advisories and critical digital literacy and media education programs. (Sarwatay & Raman, 2021, p. 536)

Sarwatay and Raman's study measured “qualitatively different ways in which young people experience, conceptualize, perceive, and understand social media and use it for meaning-making, identity creation, self-curation, self-presentation and to construct an understanding of the world” (2021, p. 539). These children were all from upper



middle-class families in India, as opposed to previous studies by Bhatia and Pathak-Shelat focusing on children from poorer communities. However, in both studies, similar problems arose from the need to negotiate access to smartphones, which were often shared, particularly if the child was younger than 12, and the inequality of access points in age groups certainly led to different patterns of access and usage. However, Sarwatay and Raman identified three quantifiable categories of access:

- Participants who had their own social media profiles/handles
- Participants who used their parent's/sibling's/grandparent's or other social media profiles/handles
- Participants who accessed content independently and browsed without a profile/handle

Sarwatay and Raman found numerous instances of the participants' independent abilities to problem solve when faced with technical, ethical, and cyber-safety issues concerning their own usage and that of their older relatives, adding:

While the younger participants in this study turned to adults for both permission and guidance when facing challenges in online spaces, the older children played a supportive role to grandparents, helping them manage their online lives. Even as we acknowledge the small participant pool we are drawing our insights from, it is safe to assume that these are patterns that may be found, in varying degrees, across urban Indian families. (2021, p. 548)

## GLOBAL KIDS ONLINE

Collectively, researchers Sarwatay, Raman, Bhatia, Arora, and Pathak-Shelat all concede there is a scarcity of India-specific and greater Global South-specific studies into children's digital citizenship and online spaces. It is arguably within this context that recent activities by *Global Kids Online (GKO)*, led by respected digital rights and literacies academic Sonia Livingstone, have surfaced (GKO, 2019). *Global Kids Online* was developed as a collaborative initiative between the UNICEF Office of Research-Innocenti, the London School of Economics and Political Science (LSE), and the EU Kids Online network. Supported by the WeProtect Global Alliance (2015–2016), the project aims to connect evidence with ongoing international dialogue regarding policy and practical solutions for children's well-being and rights in the digital age, especially in the global South. India has just recently been announced as a Global Kids Online network partner, with a research team led by Manisha Pathak-Shelat based at the Centre for Development management and Communication (CDC), at the Mudra Institute of Communications (MICA) in Ahmedabad, focusing initially on the state of Gujarat. No research reports or publications are yet available from this planned study involving an ambitious survey of 2000 child respondents aged 9–17 years of age, with an additional 100 attending in-depth interviews. The sample population is children (in school/out of school, migrant children, others) and parents.

Global Kids Online have also developed a series of highly sophisticated *Tools for Researchers* (GKO, 2015) in their research toolkit, which include the broad topics of *Qualitative Tools*, *Quantitative Tools*, *Method Guides*, *Adapting the Tools* and *Impact Tools*. Within these richly detailed individual pages are included free and downloadable model consent and information forms for participants, methodology for child-centred and participatory research, data analysis tools, survey guides, literature reviews, topic guides, practical resources for adaptation of tools, and a detailed page that discusses the impact of research with leading experts from the field. The availability of such high-quality research methodology and literature is an excellent contribution to supporting research into the robust development of children's digital citizenship in India and other Global South nations participating in the Global Kids Online initiative.

### Corporate and NGO influence on digital citizenship

An exploration of NGO activity in India in relation to children and digital technology predominantly focuses on equitable access to education through school funding and student fellowship opportunities, with a further strong focus on child exploitation prevention and cybersecurity. Firstly, of main relevance to developing children's digital literacy, is the Digital India's *Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)* (2015), a digital literacy program supported by organisations such as the Digital Empowerment Foundation (DEF), IT for Change (ITfC), Learning Links, UNESCO, the NASSCOM foundation, Vodafone India Foundation as well as corporations Hewlett-Packard (HP), Intel, PayPal, IndusInd Bank and news outlet Danik Bhaskar. The *PMGDISHA digital literacy* course spans approximately 10 days (or 20 hours) aiming to make at least one person per household (specifically targeting the poorest households in India) digitally literate. The PMDISHA was made available to one nominated family member between the ages of 14 and 60, and reports that preliminary targets were reached in late 2016, but judging by recent posts on the PMGDISHA website, digital literacy skills-enhancing activities appear to be ongoing. Along similar lines, the National Skill Development Corporation (NSDC) is a not-for-profit public limited company set up by the Ministry of Finance as a Public Private Partnership (PPP) model, which aims to promote skill development by catalysing the creation of large, quality, and for-profit vocational institutions. Although primarily providing courses for adults, the *Skill India* initiative of the NSDC includes eSkills courses for young girls and contains many free resources on their website.

Although many NGOs focus on valuable funding and school retention programs (*Educate Girls*, the *Teach for India Foundation* and *iTeach Schools* are excellent examples of this) not all are of relevance to directly supporting digital citizenship. NGOs contributing to children's digital engagement and citizenship in India do so in primarily four ways:

1. Digital skill and literacy development by providing training programs for general digital skills and study, and advanced skill development for future employment (for example: apprenticeships).

Good examples include Leadership for Equity who run the Amazon Future Engineer program for students, the Atma Foundation who run several digital literacy programs, the Inqui Lab Foundation who run a School Innovation Challenge for young people to develop tech prototypes from ideas, and The Apprentice Project that offers coding and electronics mentoring programs for school-aged children.

2. Digital Access through funding the provision or purchase of devices for individuals and schools (tablets, digital classrooms, and computers) and apps/software and products for blended learning and access to eLearning platforms.

The Cipla Foundation, Katalyst, Pehlay Akshar and Udhyaam Foundations all either fund devices directly or provide apps for phones that support their educational initiatives.

3. Research and advice on Edtech programs for Government, Education and Industry.

The Central Square Foundation and Avanti Fellows are notable examples, as well as Renissance consulting firm and the leading Edtech/training providers Embibe, Byju's and Vedantu.

4. Cybersecurity and anti-child exploitation initiatives.

The predominant impression of cybersecurity materials in India is the focus on danger and risk, particularly of a sexually exploitative nature, taking a child online protection approach. In NGO online resources, there seems to be little available in the way of child-friendly materials designed for children to access independently of adults; however, several organisations have developed materials and courses to educate children on cybersecurity basics.

The CyberPeace Foundation, CyberVeer, the e-Protect Foundation (women and child focused) and CyberSafe India are all NGOs who run cybersecurity awareness programs for children or have partnered in producing reports regarding Indian cybersecurity threats. The National Commission for the Protection of Children's Rights



(NCPCR) has also recently developed an online complaints portal where children and young people can report instances of bullying and harassment (NCPCR, n.d). The NCPCR has also been supportive of other initiatives, including its partnership with the National Association of Software and Service Companies (NASSCOM) and the United Nations Children's Fund (UNICEF) to produce a frequently cited report into child online safety (2016). According to this report, a lack of digital literacy and security awareness continues to be a problem in India, and the report puts forth several recommendations for the IT sector to work in collaboration with government and education bodies, whilst outlining several initiatives already undertaken by the sector. These include: the NASSCOM-led establishment of the Data Security Council of India (DSCI), who have conducted several cybersecurity and cybercrime social awareness campaigns; outreach programs focusing on safe web surfing and digital wellness led by the Internet and Mobile Association of India (IAMAI); Intel security's online safety *Cybermum Champions*; *Webwise* from Telenor focusing on cyberbullying, malware and abuse; Google's *Web Rangers* championing teens as helpers who assist children to navigate online spaces safely; and Microsoft's *Stand Up To Online Bullying* quiz and *Digital Citizenship in Action* toolkit (UNICEF, 2016, p. 10).

Located in the UNICEF report is a useful illustrated figure (Figure 1) outlining the “Manifestations of child online threats, abuse and exploitation in India”. The chart is followed in the report by a detailed unpacking of the subjects contained in the figure, including case studies (UNICEF, 2016, pp. 29–47).

Cyberbullying	Online sexual abuse	Online sexual exploitation	Cyber radicalization	Online attacks and fraud	Online enticement
Grooming	Grooming	Grooming	Grooming	Grooming	Grooming
Emotional harassment	Sexual harassment	Production and consumption of child sexual abuse material	Ideological indoctrination and recruitment	<b>Attack on devices:</b> malware infection	<b>Harmful behaviour:</b> exposure to inappropriate content, access to alcohol and drugs
Defamation and exposure	Sexual solicitation, also Aggressive	Sexual solicitation, also Aggressive	Threats or acts of extreme violence	<b>Exposure to inappropriate content:</b> Pharming	<b>Illegal behaviour:</b> cheating, plagiarism, gambling, drug trafficking
Intimidation	Blackmail and financial extortion	Commercial sexual exploitation and trafficking		<b>Identity theft:</b> phishing, hacking, privacy breach	<b>Self-harm:</b> sexting, self-exposure
Social exclusion				Malvertising	
				Production and consumption pirated music and videos	
				Financial fraud	
				Enticement to drug trafficking	

*Text in red constitutes legal offence in India*

Figure 1: From the UNICEF Child Online Protection in India (UNICEF, 2016, p. 31).

Of non-profit organisations’ work regarding children’s digital citizenship, specifically cyber safety, the Syama Prasad Mookerjee Research Foundation (SPMRF) (2021) have produced a recent report of note calling for greater focus in India on data protection as it pertains to technological sovereignty, referring to recent Indian Government bans of Chinese-owned platforms TikTok and WhatsApp, major platforms accessed by children in India, due to a lack of clarity regarding privacy and data protection.

## CENTRE FOR SOCIAL RESEARCH

By far, the most comprehensive cybersecurity initiative as it pertains to children and young people is produced by the longstanding Centre for Social Research (CSR) established in 1983. CSR's materials and programs are designed to encourage responsible usage of social media platforms and more general positive digital engagement as digital citizens. The CSR has a strong gender equity focus, building many social and access programs to support women and girls, such as skill development, training, sports access and social research initiatives, as well as specific initiatives designed to bring equality of access and treatment online to all users. However, of particular relevance to this study are the CSR's *We Think Digital* program (2022), a series of online safety and security workshops in collaboration with Facebook and the Central Board of Secondary Education (CBSE) designed:

to ensure students will learn what it means to be a digital citizen, the power of positive online engagement, how to identify and combat dangerous situations, digital wellness, importance of reaching out, how to spot fake news and understand the damage it can do and many more skills and tools essential to keeping safe and secure, while online. (CSR, 2022 para 2)

The CSR is also currently conducting an online survey for parents, teachers and guardians as part of their *Online Safety and Digital Wellbeing* program for children, results forthcoming.

In summary, the complex network of government agencies and broad education initiatives and NGO activities in India reveal a country keen to develop the urban and rural population's skills and knowledge of digital technologies, whilst grappling with gender-based/restricted and culturally mediated participation for most of the population (particularly women and girls) that apply in both contexts. Materials and resources supporting children's digital citizenship, whilst often generated in urban centres, are rolled out to rural locations through NGO and government programs. These programs predominantly focus on cybersafety and security, education resources supporting schoolwork, and general digital literacy (accessing email, government services and utilities as examples) to benefit all members of the household.



## THE REPUBLIC OF KOREA (SOUTH KOREA)

### Profile of Korean internet use

In the Republic of Korea (herein referred to as Korea), the subject of digital citizenship has come to prominence because of a turn of the century, society-wide, digital transformation. Korea has the fastest internet worldwide, and by 2017 the average connection speed in Korea was 28.6 Megabits per second (the global average IPv4 connection speed was 7.2 Mbps) (O' Dea, 2022). In 2018, the internet user rate reached over 90%, and has been steadily on the rise ever since. More recently, a survey of Korean internet usage conducted in 2021 showed that 47.32 million out of an estimated 51.78 million people had internet access (over 95%), with internet penetration collectively above 90% for all age groups from 3–69 years of age (Jobst, 2022). Smartphone ownership is at 92%, so unsurprisingly Koreans most regularly accessed the internet with a smartphone (99.9%), and next with laptop computers (44.3%) (Yoon, 2022). The most popular messaging platform for Koreans is KakaoTalk (also known as KaTalk), a free messaging application with more than 47 million active monthly users. This free mobile messenger app for smartphones sells emoticons depicting popular characters for use on the platform that users can share amongst contacts and in chatrooms, as well as popular and fashionable sticker packs sold in KakaoTalk merchandise stores. Most citizens use social media daily, with older Koreans preferring domestic platforms like Naver BAND. International platforms such as Instagram (particularly with under 35 year olds) and Facebook are more popular amongst younger users, with YouTube widely popular amongst Koreans of all ages (Jobst, 2022).

### Defining digital citizenship in Korea

In the absence of more explicit Korean definitions of the concept of digital citizenship, academic researcher June Lee et al.'s comprehensive article identifies several components of digital citizenship from Korean academic authors, including Jung-Im Ahn and Jin-Ho Cho's (2020) delineation of technology utilization, participation expression, production, self-protection, collaboration, and consideration for others (as cited in Lee et al., 2022, p. 95), all of which are deemed vital to digital citizenship. Likewise, B. S. Kim et al.'s article published for the Daegu: Korea Education and Research Information Service, identifies digital security, empathy, social responsibility, digital self-identity, understanding of digital society, and critical thinking as important factors of digital citizenship (as cited in Lee et al., 2022, p. 95). Education researcher Ki-Bum Park argues that "the components of traditional citizenship and digital

citizenship are no different. However, due to the nature of the digital environment, there is a difference in the degree of activation of the components” (Park, 2014, p. 33). Park nominates netiquette, information protection, responsibility, critical thinking, collaboration, communication and participation as essential to digital citizenship. Social Science academic Si Jik Lee defined digital citizenship more broadly as ways of living in a knowledge information society, the capability to understand digital technology and its uses, for now and in preparation for the future. While Lee emphasises technology, other scholars focus on civic virtue such as Ki-Bum Park (2018) who elaborates that:

Digital citizenship is citizenship in the era of the 4th industrial revolution, in which rights and duties in terms of rationality, practicality, and morality are given contextually in a digital network environment. The decentralization and anonymity implied by digital networks give citizens more freedom than ever before. This freedom requires autonomous control of individual citizens before legal control. In order for this autonomous control to work properly, it requires responsibility based on the citizen's own reflection from a moral point of view. (p. 573)

Based on their understanding of digital citizenship, researchers have critically discussed how current policies are limited in their ability to develop digital citizenship. For example, educational researchers Jeong-Hwa Jeon et al. (2021) also define digital citizenship along civic responsibility lines as “the basic competencies and qualities that citizens living in an ICT-based digital society must have in order to fulfill their rights and obligations”(2021, p. 817). They posit that it is necessary to define the critical competencies of digital citizenship first to differentiate digital citizenship education from other similar forms of education, such as cyberbullying and harassment education or media projects.

Similarly, Beop Yeon Kim et al. (2021) critique the prevalent misunderstandings of digital citizenship education, pointing out that current policy focuses on preventing the problems caused by modern technology rather than considering what should be taught in a changing society. Kim et al. also critique how current digital citizenship education focuses primarily on improving children's information and communication technology skills. However, social researchers Jung Im Ahn et al. (2013) argue that too overt a focus on technical skills has the potential to negatively impact children's interests because children need to develop critical thinking capabilities to better navigate their lives as digital citizens.

## Government and education approaches to supporting digital citizenship

The Korean government's *Plans for digital innovation and the improvement of capability in digital media* were formulated in relation to the case for developing critical capabilities and demonstrates the Korean government's ongoing vision for

children's digital citizenship. As an example, one of these plans, the *6th master plan for adolescents* (2018), presents as a background the various changes in the environment surrounding young people, with particular attention to the universalisation of smartphones. In the plan, the spread of the smartphone is directly connected to the issue of young people's overdependence on the devices. Chiefly concerning the potential overuse of smartphones as an adverse consequence of digitalisation, the plan emphasises young people's capability to use media in sound, balanced ways, and advocates for providing early diagnoses and assistance for youth who are overly dependent on smartphones. It also identifies detrimental environments young people face in digital spaces, including the circulation of harmful information or fake news in new media, unhealthy advertisements on search websites, and negative aspects of chat apps. The improvement of these environments is identified in the *6th plan* as a crucial avenue of intervention in young people's lives. The *2nd master plan for children* (2020a) similarly focuses on addressing the issue of threats to children's safety and mental and physical health in digital spaces. It highlights cases where young people's time spent on YouTube has led to stress, privacy violation, and lack of sleep. The plan places emphasis on how to protect children's safety, but also their particular rights in the digital sphere. Furthermore, it stresses the violations of children's rights within digital media. In this policy for children, the dangers they are exposed to are foregrounded and, consequently, the policy sets a critical task intervention to protect children from these dangers.

### SCREENTIME AND INTERNET 'ADDICTION'

The Korean government first recognised internet addiction risks in the early 2000s. Measurement of internet addiction using the K-Scale (K refers to Korea) was designed by the government and academia in 2002 as a questionnaire to measure the presence and severity of internet addiction. At that time, Korea had built a specialised treatment infrastructure of clinics, or 'detox' centres, and inpatient hospitals to address the increasingly common ailment of internet addiction. Later, the S-scale (S stands for smartphone) was developed in 2011 to measure smartphone addiction. To develop diagnostic criteria for internet addiction, the National Information Society Agency (NISA) developed the *Korean Smartphone Addiction Proneness Scale for Youth and Adults* based on Young's *Internet Addiction Test* (IAT) (Kim et al., 2014). As part of a plan to eliminate internet addiction risks, the Korean government has established an Internet Addiction Prevention Center (IAPC) providing nationwide services. From its inception in 2002, the IAPC has expanded to fifteen centres providing one IAPC per each of seventeen metropolitan cities/provinces (Cho, 2016). In addition to the infrastructure for digital media education, the plan sets forth as its main tasks the improvement of Koreans' capability for digital content creation, along with improvements more akin to



digital citizenship such as developing their critical thinking capability when assessing existing content, and ethics education regarding digital media. Overall, this list shows the educative intention of the new plan is to improve the creation of digital content using new media and technologies and to address fake news as a critical problem.

Featured as a contributing author in the *Cambridge Handbook of International Prevention Science* (Israelashvili & Romano, 2016), a relatively new and transdisciplinary field of research including a focus on addictive behaviours, Cheung-Moon Cho of the National Information Society Agency Korea argues that the so-called 'addictive' nature of the internet and smartphone use is becoming a major social issue in Korea (Cho, 2016). The higher the child participation rate in internet and online activities, the greater the general concern regarding the possible negative impact of the internet on young children has become, generating an interest in specific aspects of digital citizenship in Korea. Cho relates that a *First master plan* (Ministry of Public Administration and Security, 2010) for children focused on protective measures surrounding personal computer (PC)-based online games where adult material was introduced. Later, the focus moved from PCs to smartphones in the *Second master plan* (Ministry of Public Administration and Security, 2013), which included not only measures to prevent internet addiction, but also measures to treat those who were deemed to be most at risk. The newest *Master Plan to improve capability in digital media communication* (Association of Government Ministries, 2020b) focusses on digital media skills development owing to the seemingly ubiquitous role of digital engagements in Korean children's lives.

The Korean government's concerns regarding internet addiction provided impetus for the government to rapidly devise various policies to limit risks faced by young people, and in 2011 this included the enforcement of the controversial *Youth Protection Revision Act*, (commonly known as the *Shutdown Law* or *Cinderella Law*) which prohibited gaming activities for children under the age of sixteen between 12am and 6am. Although controversial from its inception due to questions around its effectiveness and enforceability, a 'choice permit' system was put in place in 2012, which permitted guardians to allocate playtime hours to children themselves (Batchelor, 2021). Critics within the Korean Gaming Industry, and the Korea Creative Content Agency have argued that the regulation of PC gaming did not correlate with the smartphone-centered trend in Korean internet culture (Korea Herald, 2021). When Minecraft inadvertently became an adults only (R-Rated) game due to the introduction of Xbox Live integration (which owner Microsoft failed to provide in a Korea-friendly version), a large petition to abolish the Shutdown Law signed by over 100,000 people was prompted (Taylor, 2021). Finally, in August 2021 the Ministry of Culture, Sports and Tourism and the Ministry of Gender Equality and Family moved to abolish the law

in order to be more respectful of children's rights to leisure activity and communication (Taylor, 2021).

Previously, policies like the shutdown law focused on risk elimination instead of opportunities afforded by participation. However, along with the *Master plan to improve capability in digital media communication* (2020b) an approach that leans towards risk management rather than exclusion has been fostered. Parents and Guardians can still impose a shutdown choice permit system, and the Master Plan also acknowledges social change caused by the COVID 19 pandemic, stressing that digital media has become an ever more crucial part of children's lives, but therefore greater digital media education is needed. In its approach to digital media education, it is notable that the plan foregrounds the increase in the adverse effects of digital media, such as the digital divide, online harassment, privacy violations and fake news, as a background for the need for improved digital media education.

The *Master plan for the improvement of capabilities in digital media communication* (Association of Government Ministries, 2020b) (see Figure 2 for the plan's overview graphic) identifies the overuse of smartphones as a severe adverse consequence of digitalisation, emphasising the need for young people to develop capabilities to use media in more positive ways. To that end, the plan has a central focus on providing early diagnoses and assistance for youth who are overdependent on their phones. In addition to the overdependence problem, like the *6th master plan for adolescents* (2018), the 2020 plan identifies the circulation of harmful information in new media, unhealthy advertisements on search websites, and chat apps as detrimental elements and environments young people face in digital spaces. The plan targets improvement of these online environments as key avenues of intervention in young people's lives.

The Korean government's preventative or protectionist approach has also filtered into creative education initiatives. Since 2014, preschool children and primary school students in lower grades have been performing the *Addiction Prevention Play*, an initiative funded by *Smart Media Clean Schools*, to convey the prevention message in an engaging manner. Following a play or a playful animal puppet show depicting characters' involvement in Internet addiction, the teacher then discusses the dangers of internet addiction and its prevention. There have also been several school activities/campaigns aimed at encouraging students to use the internet and smartphones in a responsible manner that prevents them from developing an internet/smartphone addiction. Preventive education also includes the distribution of a smart media guidebook, which is given to all students in kindergarten through high school (Cho, 2016).



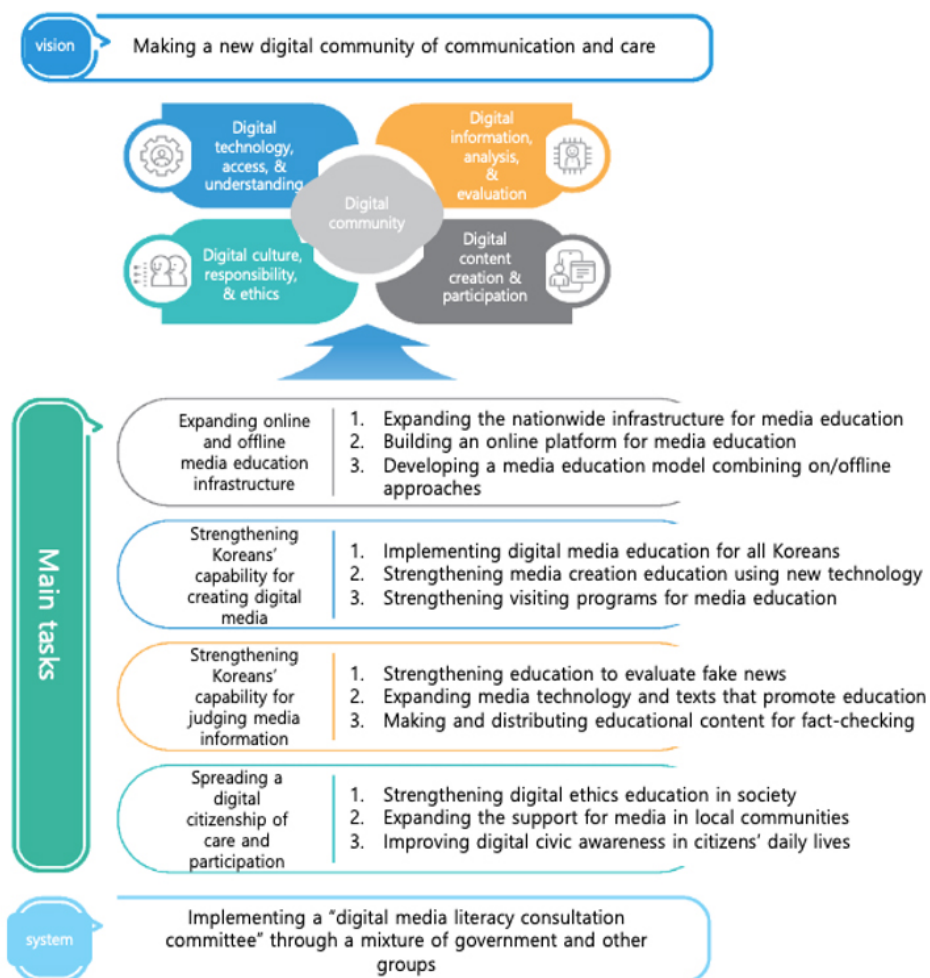


Figure 2: *Master plan for the improvement of capabilities in digital media communication Association of Government Ministries (Government of the Republic of Korea, 2020).*

However, according to the DQ Institute's *2020 Child Online Safety Index (COSI)*, although Korea is rated above average globally across five of the six pillars of COSI (including cyber risk, digital use, competency, connectivity and social infrastructure), in the area of 'guidance and education' for young people it performs at a below globally average rate, rating lower than China, Vietnam, South Africa and the USA (DQ Institute, 2020, p. 7). COSI additionally reports statistics that owning a smartphone increases children's risks of cyberbullying, reputational risk, risky contact, exposure to sexual or violent content, and a risk of gaming disorders by 20%; adding that this risk level is increased by 40% for those highly active on social media and participating in online gaming (DQ Institute, 2020, p. 7). This suggests Korean children have enhanced access to smartphone devices and superior internet connectivity; however, they are lacking the education about skills to effectively navigate threats encountered online in regards to privacy and protective behaviours.

## CYBERSECURITY

Cybersecurity is one of the issues of concern to the Korean government in their *Master Plans* because it is argued that cybersecurity is directly related to cyberbullying and online sexual harassment. The *2nd master plan for children (2020a)*, for instance, notes children's overdependence on smartphones, data privacy concerns and online sex crime as the main problems children face in a digital world. Furthermore, the plan stresses the violations of (a particular protectionist view of) children's rights within digital media, highlighting cases where young people's time spent on YouTube led to stress, privacy violation, and lack of sleep. The plan emphasises how to protect children's safety and rights in the digital sphere. Cultural anthropologists Changho Lee and Namin Shin discuss digital citizenship as a civic virtue everyone living in a digital society needs to have to overcome the many instances of cyberbullying they identify enacted via the popular real-time chat service *KakaoTalk*. They argue digital citizenship can also address and the increased prevalence of cyberbullying amongst teens who utilised other platforms such as Facebook, and via smartphones in general (Lee & Shin, 2017, p. 353). Interestingly, Lee and Shin report that cyberbullying perpetration was not moderated by family attachment or school life satisfaction.

Among the methods taken by the Korean government to increase cybersecurity is a smartphone app, 'Cyber Security Zone', to monitor children, created by the government to raise awareness of these threats. This smartphone tracking software was mandated by law for all children under the age of 18. However, in 2015, after a major security issue in the app was discovered, it was taken off the market (BBC, 2015). Along with these measures, the usage of smartphones in classrooms are often restricted by school policy. Cho cites one survey (2016) that showed that 65% (the percentage is 46 % in primary and 91% in high schools) of schools in Korea prohibit the use of smartphones in the classroom. This is accomplished by teachers having students' smartphones confiscated and returned after classes.

## CRITICAL THINKING (DIGITAL LITERACY)

Students in Korean public schools are taught media literacy as part of their regular classes, including Korean language, social studies, ethics, the arts, and practical studies. The Ministry of Education establishes the curriculum's content and subject areas. As a result of government support, schools now have the equipment and infrastructure to implement a technology-integrated curriculum.

Beginning in 2007, a new national curriculum was developed with media-related issues included in every subject. In 2015, by incorporating communication and information processing as essential abilities in the national curriculum, media literacy education was more actively addressed. According to government-supported media literacy

lesson plans from 2025, the sixth-grade Korean language textbook for sixth graders will contain a critical examination of the news concerning global warming in addition to a lesson plan on news production. The critical analysis abilities these lesson plans teach can be used to analyse other politically sensitive media content, including digital contexts, thus potentially enhancing digital literacy whilst predominantly focusing on media literacy.

Jiwon Yoon et al. (2019) claim that media literacy initiatives in Korea may be traced back to the early 1980s when non-governmental organisations (NGOs) began to push back against state control of the media. From this time, the use of media production as a teaching strategy has become increasingly common in Korean media education initiatives. Major broadcasters like Munhwa Broadcasting Corporation (MBC) and Korean Broadcasting System (KBS) have become involved in promoting media literacy through the establishment of community media centres and video production projects. They are also involved in the production of television programs aimed at honing viewers' critical viewing skills and raising their awareness of the importance of those skills. As a result of a meeting of a variety of stakeholders—media experts, politicians, non-profit organisations, educators, activists, and other interested citizens—the Media Literacy Education Support Act Commission was established in 2017.

## Improving digital citizenship education

Yoon et al. (2019) argue that media literacy should be promoted across all age groups, both in and outside of formal education institutions. However, students in Korea are reluctant to take lessons that focus on analysing the media in terms of its influence, economy and other features because of their lack of interest in the subject. Instead, students tend to focus on hands-on, production-oriented courses (Yoon et al., 2019). Kim, Kwon and Kim (2021) argue that digital citizenship education should cultivate citizens who can respond to digitalised changes in a way that goes beyond providing a simple information literacy program. As such, they have provided suggestions to improve digital citizenship education, including going beyond a protective approach. Kim et al. assert comprehensive transformation across the overall curriculum is necessary. They also suggest that digital citizenship education should be grounded in a changed assumption that students are not just the beneficiaries of technology, or objects to be protected from the dangers wrought by new technology, but rather have agency in relation to the technology.

Even though digital citizenship education targets young people, there have been few studies that illuminate the experiences and knowledge of these young people (Lee et al., 2020). Researchers do stress paying more attention to children's voices.

They argue that, given that young people have their own experiences in the digital world and have their own views on the nature of digital citizenship, Korean contexts would benefit from a deeper level of understanding of how children and young people experience and navigate the digital world and what is needed for their wellbeing in digital contexts.

## Corporate and NGO influence on digital citizenship

At present, cybersecurity and cyberbullying are highly prevalent topics in Korea, particularly due to increased incidences of cyberbullying exacerbated by COVID 19-related move to online learning and lockdowns increasing screentime, and by recent high-profile incidences of celebrity suicide following trolling and cyber harassment. Whilst cybersecurity firms in Korea such as the Korea Cyber Security Association (KCSA) and the Korea Internet and Security Agency (KISA) focus primarily on security threats posed by international hacking and interference, incidences of cyberbullying-prompted suicide have placed the need for education and guidance for young people into sharper relief. Recent events in the Korean public sphere include the suicide of K-Pop star Sulli, gamer and influencer Cho Jang-Mi (BJ Jammi) and professional volleyball player Kim In-hyeok (BBC News, 2022); events that have prompted public petitions to increase penalties for cyber harassment, and led to a renewed push for legislation making cyberbullying education compulsory in all schools (Raisback, 2022). Further concerns, specific to child digital sex crime and sexual exploitation in Korea, was the recent 'Nth room' case in which, between late 2018 and early 2020, suspects groomed, threatened and blackmailed victims via the ubiquitously-used social media platforms, Telegram, Line, and KakaoTalk. These victims included multiple minors, with a total of 1,154 victims confirmed by investigation's end in December 2020, of which 60.7% were in their 20s or younger. As of March 2020, the number of criminal perpetrators was at least 60,000 (Choi & Park, 2021).

Several NGOs support the combatting of cyberbullying and harassment, with an additional focus on digital citizenship education or access to counselling to equip young people with the knowledge to combat and navigate online spaces safely. Most notably, these include: the Blue Tree Foundation; The Daum Foundation; the Korea Youth Counselling and Welfare Institute (KYCI); the National Youth Policy Institute (NYPI); the Korea Institute of Child Care and Education; the Centre for Digital Literacy.

### BLUE TREE FOUNDATION

The most influential of these groups in terms of addressing bullying and harassment is the Blue Tree Foundation, who have multiple resources available to adults and youth on their website, including a complaints portal and an online petition to stop violence

and harassment, as well as ongoing programs against cyberbullying (including the *Blue Shirt campaign* and the *Daehyun Scholarship*) supported by prominent Korean celebrities. The Blue Tree Foundation provides many in-school awareness programs and workshops for school-aged students, as well as education programs for teachers and parents. The Blue Tree Foundation operates 11 youth centres within Korea, with an additional 14 national branch offices (Blue Tree Foundation, 2019; Blue Tree Foundation, n.d. [2022]).

### **DAUM FOUNDATION**

The Daum Foundation is a non-profit organisation that supports many innovative projects for social betterment. Projects of relevance to supporting children's digital citizenship include: *YouthVoice*, a media literacy project for adolescents; *Social Innovation Camp 36*, a social activism camp developing web applications on chosen topics; *ChangeOn*, supporting media and IT projects in the public interest: and advocacy of more than 21 human rights organisations, including those promoting youth rights and activism through the use of media and communication technologies (Daum Foundation, n.d. [2022]).

### **KOREA YOUTH COUNSELLING AND WELFARE INSTITUTE (KYCI)**

The KYCI contains many resources for children and their guardians on its website, as well as offering online counselling services. With a particular focus on tools and resources for children experiencing cyberbullying and harassment, its website has a comprehensive training and counselling schedule made available, as well as access to a webzine, peer counselling and a portal called *Cyber1388* containing multiple tabs regarding social media use on platforms such as Facebook and KakaoTalk, as well as practical advice for parents and families concerning technology. It contains colourful and fun graphics easily navigated by children and adults (KYCI, n.d. [2022]).

### **NYPI, KICCE AND KERIS**

The three organisations concerned with youth media are the National Youth Policy Institute (NYPI), the Korea Institute of Child Care and Education (KICCE) and The Korea Education and Research Information Service (KERIS). Both the NYPI and the KICCE are prominent non-government research institutions performing similar functions by spearheading research concerning and impacting upon young Koreans. Established as the Korea Institute in 1989, the NYPI performs youth related basic and policy research, and its most recent research projects supporting children's digital citizenship include: a 2022 study on youth media usage; a 2021 study of digital sex crimes against Korean children and youth; a 2020 study on youth participation in digital platforms in Korea (NYPI, n.d. [2022]-a). In addition, several papers are

published on the NYPI website relevant to supporting Korean digital citizenship (NYPI, n.d. [2022]-b]). Established in 2005, the KICCE has a greater focus on very young children, supporting early childhood education, childcare and support of teachers and childcare workers. The KICCE publishes reports on several of their projects, and of relevance to digital citizenship is a 2021 study measuring ways to advance the expertise of early childhood teachers through the use of edtech in education settings (KICCE, n.d. [2022]). Whilst not an NGO, the KERIS is a public institution under the Korean Ministry of Education that promotes various projects and academic research related to Information and Communication Technology (ICT) used in primary to higher education. Most recently they have developed an innovative *KERIS Future Education Center*, a model classroom allowing teachers to view and explore new and innovative edtech options for use in their own classrooms, as well as access to training (KERIS, n.d. [2022]).

### CENTRE FOR DIGITAL LITERACY (CDL)

The CDL has an impressive website, sponsored by Google Korea, and provides a comprehensive program of digital literacy projects provided to industry, other non-profit organisations, the general public, and specialised programs for teachers, adolescents and young children. The CDL support children's digital citizenship development through their targeted *Public Education Innovation Support Project* which includes the development and delivery of digital education content, teacher training in digital education, direct digital coaching for students and education awareness training for parents. CDL's history, as detailed on their website, also lists several memorandums of understanding (MOUs) with Korean and international tertiary education bodies, as well as digital literacy training and cooperation with large corporations such as Samsung SDS, the Daesung Group and the AK Group (CDL, n.d. [2022]).

In summary, although Korea is a hyper-connected nation, there is inconsistent education about online threats to children's psychological and physical well-being, most notably for young children. Materials and resources supporting children's digital citizenship are sporadic, and education curriculums do not present a united approach to digital citizenship development. Several recent high-profile cyberbullying and harassment incidences in the media have raised a greater awareness of these problems in Korean society, of which government agencies are now addressing in a more unified way.





## AUSTRALIA

### PROFILE OF AUSTRALIAN INTERNET USE

Comparatively speaking, Australian children have a greater range of devices to access the internet both at home and in school, and earlier digital access in life indicating greater opportunity for digital literacy fluency, than countries of the Global South such as India, and more education and guidance for young people accessing the internet than developed nations such as Korea. A recent interactive report published by the Australian Communications and Media Authority (ACMA, 2021a) shows that 99% of Australian adults have access to the internet, with 91% of Australian adults owning a home internet subscription suggesting a context of potentially wide access for Australian children.

Mobile phones were the most used device to access the internet in Australia (93%); however, individuals and households were more likely to have more than one device. In fact, on average, in 2021 an Australian adult used 4 different types of devices to access the internet, a decrease from 5 different devices in 2020. ACMA additionally reports that, in June 2020, 33% of Australian children aged 6–13 owned a mobile phone, whilst a further 14% had access to a mobile they could use but didn't own (2021b). Most of these children used these phones to play games, take photos/videos and use apps whilst also using the phone to communicate with others via text and calls to parents or family. Additionally, the Australian eSafety Commissioner reports that 81% of Australian parents with preschool-aged children say their children use the internet, and of these parents, 94% say their child was using the internet by age 4, either on a tablet (94%), smartphone (85%) or a desktop computer (83%) (2022), revealing usage patterns—although generally mediated—similar to adults.

Recent COVID 19 school closures in Australia have increased data usage and screentime for school-aged children, but also revealed a digital divide of approximately 4 million Australian families in the lowest income bracket who have an average of 1.4 computer devices at home (primarily mobile phones). This meant that they struggled to keep up with increased data and device demands prompted by the move to eLearning (Noble, 2020). Although the move to online learning prompted by COVID 19 from early 2020 onward has led to more children engaging with digital technologies for learning as well as leisure time during lockdown periods, in the preceding decade, Australian government and educational bodies were already heavily invested in developing children's awareness around digital literacy, engagement, cybersecurity, and educational benefits of Edtech and online study.

The Australian Human Rights Commission (AHRC) listed the 2013 establishment of the Australian eSafety Commissioner, as well as the National Data Commissioner in 2018, at the top of their list of positive developments for children's rights in Australia in the decade preceding 2019 (AHRC, 2019). Since then, the Government-funded Australian Research Council's establishment of the Centre of Excellence for the Digital Child (CDC) in 2021 would now likely be a new notable inclusion on this list. The most relevant sources of recent literature pertinent to this study are currently spearheaded by the CDC and the government bodies, educational institutions, NGOs and industry that are its immediate partners and affiliates, including the eSafety Commissioner. This Australia-focused review proceeds by focusing on the literature and research developing and supporting children's digital citizenship from these immediate sources, whilst also identifying other related and pertinent research and development initiatives that additionally support children's ongoing digital citizenship, beginning with Australian government sources.

## Defining digital citizenship in Australia

The Australian eSafety Commissioner defines a digital citizen as “a person with the skills and knowledge to effectively use digital technologies to participate in society, communicate with others and create and consume digital content” (2020, p. 34). The *Digital Technologies Hub*, developed to support the Australian national educational curriculum units (ACARA) on curriculum focus area *Digital Technologies*, integrates and elaborates on the eSafety Commissioner's shorter definition by contributing a lengthier description of digital citizenship's features in its unit description of the years 5–6 digital citizenship teaching module:

Digital citizenship is about positive and confident engagement with digital technology. A good digital citizen knows how to effectively use digital technologies to communicate with others, participate in society, and create and consume digital content in a safe and responsible manner. Digital citizens are aware that their behaviour online contributes to their own digital footprint. This includes engaging positively, respectfully and ethically when interacting online and making conscious choices and informed decisions about what information is shared, appropriate conduct and use of language. Digital citizens apply these protocols in situations such as interacting in a collaborative learning space, or creating a blog or website where their public profile is displayed. (DTH, n.d [2016]-b para 1)

The *Australian Curriculum Technologies Glossary* defines digital citizenship as:

An acceptance and upholding of the norms of appropriate, responsible behaviour with regard to the use of digital technologies. This involves using digital technologies effectively and not misusing them to disadvantage others. Digital citizenship includes appropriate online etiquette, literacy in how digital technologies work and how to use them, an understanding of ethics and related law, knowing how to stay safe online, and advice on related health and safety issues such as predators and the permanence of data. (ACARA, n.d [2014] para 14)



Michael Dezuanni, QUT professor and Chief Investigator (CI) with the ARC Centre of Excellence for the Digital Child (CDC) proposes the following definition:

Digital citizenship is a term that describes the knowledge and skills individuals require to successfully participate in societies where digital media and technologies play a central role in daily life. It is important for entertainment and leisure, learning and education, employment, and for social, cultural and civic participation (Dezuanni, 2022, para 1)

These three sources are but a few of the nuanced understandings of digital citizenship, from a dedicated school curriculum approach to an academic research perspective, to the exhaustively thorough approach demonstrated by the most relevant government body involved in developing Australian children's digital citizenship—Australia's e-Safety Commissioner.

## Government-led initiatives

### OFFICE OF THE ESAFETY COMMISSIONER

The office of the eSafety Commissioner have created a very detailed website, featuring an exhaustive online repository of resources for Australians worthy of its own indepth literature review. Nevertheless, and more briefly, this website is organised into eight broad categories or pages: educators, parents, young people, kids, women, seniors, diverse groups, and industry. Of most relevance to this study are the *Parents* (n.d [2013]-c), *Educators* (n.d [2013]-a), *Kids* (n.d [2013]-b) and *Young People* (n.d [2013]-d) pages. Each of these pages spirals out into sub-categories (and further sub-categories) of resources. Notable amongst this wealth of material is the highly sophisticated and specific tailoring of each page's materials and design to each age group/demographic. The *Educators* page (eSafety Commissioner, n.d [2013]-a) features a detailed *Classroom Resources* tab containing lesson plans, worksheets, slideshows and videos specifically tailored for educational use, and split into three age groups (Early years, Primary and Secondary—which are themselves split into lower, middle and upper groups). There is also an *eSafety Champions Network* tab containing materials for members of the network of teachers, wellbeing professionals and staff representatives across Australia who make online safety a priority in their schools, and a *Training For Professionals* tab with resource materials and links to ongoing educational training in eSafety.

The *Parents* page (eSafety Commissioner, n.d [2013]-c) features individual tabs tackling *The Big Issues*, *Children under 5*, *Sexting and Sending Nudes*, *Skills and Advice*, *Downloadable Resources* and *Cyberbullying*, each tab exhaustively exploring each area, and the parents page also includes a tab to eSafety webinars available to parents on relevant topics (previously scheduled webinars have included Parental controls, Cyberbullying and Popular apps). The *Kids* page (eSafety Commissioner, n.d

[2013]-b) is targeted at children for them to access directly, with minimal tabs and clear button-like icons with child-friendly vocabulary. For example, the main Kids page has an animated graphic (See Figure 3 below) featuring a young child holding a computer, and a smiling, anthropomorphised mobile phone character with two main buttons: *I want help with*, and *Be an eSafe Kid*.



Figure 3: Australian eSafety Commissioner Kids Page.

The *Be an eSafe Kid* tab leads to further mobile phone characters with 4 sub-categories of *Be Safe*, *Be Curious*, *Be Kind* and *Be Secure*, again leading to pages that list in colourful graphics and child-friendly vocabulary, all indicating topics relevant to children's digital citizenship. These topics include cyber safety, managing your personal information, online bullying, and more positive topics of critical thinking (like identifying fake news), kindness, and digital play/gaming. These all reiterate the *I want help with* tab, where children can find information and support networks including a clear and easy to follow eSafety complaints portal and a link to a Kids Helpline. The *Young People* page (eSafety Commissioner, n.d [2013]-d), in a similar manner to the *Kids* page, features artwork (primarily photographic) and edgier graphics, as well as vocabulary in line with adolescents and youth. More age-appropriate topics such as digital reputation, sending nudes, online abuse, online dating, being out or trans online

and catfishing are some topics listed; in fact, this page has an astounding 26 subject tabs linking to pages filled with research-backed advice, downloadable resources, and links to mental health resources and organisations such as Headspace and Kids Helpline.

### ACARA AND THE DIGITAL TECHNOLOGIES HUB

The Australian Curriculum Assessment and Reporting Authority (ACARA) is an independent statutory authority established in 2008 and directed by the Commonwealth minister for education and youth, and state and territory education ministers. In 2013/14, ACARA developed and launched a very thorough *Multimedia: Digital Technologies* (ACARA, 2013) dimension to the Australian curriculum which focused on all aspects of exploring digital systems at graded levels across the following year levels: *Foundation to Year 2* (ages 5–7); *Years 3 and 4* (ages 8–10); *Years 5 and 6* (ages 11–12); and *Years 7 and 8* (ages 13–14). In *Foundation to Year 2* and *Years 3 and 4*, the curriculum includes 'Knowledge and Understanding' components as well as 'Processes and Production Skills'; in the last two remaining year groups, the program becomes more advanced, with greater focus on 'Processes and Production Skills'. A useful introductory video to the aspects of the curriculum development produced by ACARA outlines the various components of the curriculum development (2014).

In 2016, the aforementioned *Digital Technologies Hub* (DTH) website was launched to support the Digital Technologies (DT) curriculum by providing learning resources and services for teachers, students, school leaders and parents, as well as to present materials that support the movement forward into skills and employment utilising digital technologies. The Hub was developed by the Australian Government Department of Education Skills and Employment, in conjunction with Education Services Australia (ESA), a not-for-profit company owned by the state, territory and Australian Government education ministers. Another exhaustive repository of information and resources, the Hub also presents information in broad categories; in this instance, *Understanding DT* (DTH, n.d [2016]-f), *Teach and Assess* (DTH, n.d [2016]-e), *For Families* (DTH, n.d [2016]-c) and *Plan and Prepare* (DTH, n.d [2016]-d). Each of these tabs also spiral out into subcategories focusing on areas of teaching and learning, assessment and capacity building, or skill development for future employment.

An examination of the year level overviews of school grades K–10 (4–16 years of age) provided on the Hub reveals that the concentration of these learning objectives is primarily to build skills, knowledge and literacy of software and systems—the literacy and skill development components of digital citizenship—with less material about ethical behaviour or wellbeing online. The exception to this is a straightforward collaborative module in years 5–6 called *Digital Citizenship*, slated to last 5 hours

in a classroom (over a week or more on the topic), and entails students providing a definition of digital citizenship, agreeing as a class on some ethical, social and technical online protocols, and then collaborating to build a class blog or web page (DTH, n.d [2016]-a). Additionally, the Hub also leverages resources, events and activities offered by education jurisdictions, industry, and other providers, some of which address additional social and behavioural issues encountered online. For example, a search on the hub for the topic 'digital citizenship' brings up 33 specific results on the topic. These include: curriculum aligned teaching modules; links to ESA materials about digital footprint and identity; coding courses offered by Edtech organisation CODE; eSafety Commissioner materials; Common Sense Education videos about privacy and security; a Project Rokit video about cyberbullying and challenging bad behaviour; and digital literacy and critical thinking videos from Mozilla.

### NSW DEPARTMENT OF EDUCATION DIGITAL CITIZENSHIP WEBSITE

The December 2019 launch of the NSW Department of Education's Digital Citizenship website, which links to the following Australian Curriculum areas: *Learning Continuum of Information and Communication Technology (ICT) Capability*; *Critical and Creative Thinking*; *Ethical understanding*; *Personal and Social Capability*; and another area of relevance, *Intercultural Understanding*. This Digital Citizenship website is notable in its listed objective to "move away from a fear-based approach to focus more on a positively framed strategy" (2019a para 3). Though smaller in scale, its layout, graphics and content are remarkably like those found on the eSafety Commissioner website, unsurprising as it lists the eSafety Commissioner as a 'content partner' along with the DQ Institute, Optus Digital Thumbprint (curriculum aligned workshops on responsible digital engagement), *the Behavioural Insights Team* (NGO consulting firm) and education consultant Dr Talitha Kingsmill. The Digital Citizenship website has three broad categories of *Parents* (2019b), *Students* (2019c) and *Teachers* (2019d) but lists essentially the same material on each page. It does make available multiple downloadable resources on relevant topics including cyber safety, screentime, and cyberbullying, but it also focuses on critical thinking skills and fun activities such as digital play, collaborating online on creative and other projects, online shopping, and banking. Many of the classroom resources and guides contain direct links to the eSafety Commissioner website materials, and links to news stories and opinion pieces from the Australian Broadcasting Commission (ABC) and the online media outlet *The Conversation*, among others.

## Academia

The broader academic research landscape in Australia suggests a move away from a perception of children's engagement in digital contexts as one of danger and threat, toward a more complex system of affordances for supporting the positive, empowered and digitally literate child. Australian communications professor and CDC chief investigator (CI) Lelia Green traces the evolution of the concept of digital citizenship globally after 1995. She indicates that the concept began from the construction of children's digital engagement as more a “matter of provision...[to] then as a matter of protection (approximately 2005–2014), and most recently as an emerging discussion around participation” (Green, 2021, p. 337), arguing further that participation is crucial to the enactment of citizenship. Green notes that global discourse prior to this has centred around a primarily protectionist approach toward children's engagement with technology, and that children's rights to participate in digital spaces have been curtailed as a result. Green et al.'s work further investigates issues of reactive parenting of very young Australian children (Green et al., 2019), identifying a disconnect between parent/guardian concerns and assumptions about the implicit danger of online worlds and children's digital prowess, leading to an underestimation of capabilities of young people to navigate these worlds (Green, 2020, 2021).

Digital Rights advocate Amanda Third argues that “adult ways of being have dominated, for too long how young people and the digital are configured in mainstream debates” (2019, p. 2). As Third outlines in *Young People in Digital Society*, the persistence of a sense of a distinct separation between on and offline worlds—mainly by adults who remember life before the Internet—becomes a problematic concept that clashes with the modern and ever-present blurring of on and offline worlds brought to the fore by devices like smartphones, and the way “mobile access to the Internet is folded into users' everyday real-time and physical interactions, blurring the distinctions between ‘online’ and ‘offline’ and disrupting the role of ‘place’ for Internet use” (Third et al., 2019, p. 13). CDC research fellow Kylie J Stevenson suggests a posthuman lens might progress understandings of this blurred online/offline dichotomy to one of no distinction between the two: “in order to fully understand the emergent, agentic assemblages of the human child and the digital nonhuman in the postdigital 21<sup>st</sup> Century” (Stevenson, 2020, p. 84).

Research in Educational Impact (REDI) professor and CDC CI Luci Pangrazio's work with young Australian people aged 14–19 adds to the complexity of the contentious ‘digital natives’ narrative—whereby there is an assumption children are born ‘digitally capable’ (Prensky, 2001)—holding rich clues to the social media-led worlds and building of digital identities taking place in the near future of the younger cohort

investigated in our study. Pangrazio's research reveals that young Australians' use of platforms such as Facebook, YouTube and Steam is shaped not just by the user's interests, but by the "structural and discursive connections that exist between digital platforms" (2019, p. 2); she argues that participation in these platforms can be seen as an active but also, necessarily, 'impelled' choice. Pangrazio investigates the influence of "coded architectures of the digital platforms, together with the social and cultural factors in which digital practices are embedded" (2019, p. 4), presenting Australian young people's experiences of digital contexts as complex, diverse and divergent. Along with frequent co-authors Julian Sefton-Green (CDC CI), Lourdes Cardozo-Gaibisso, and Neil Selwyn, Pangrazio has also contributed to the interrogation of much of the nebulous terminology surrounding the use of the adjective 'digital' as it applies to rights, literacy and citizenship (Pangrazio & Sefton-Green, 2021), and advocates for strong digital literacy approaches in education, particularly as they apply to social media platforms (Pangrazio, 2020; Pangrazio & Cardozo Gaibisso, 2020; Pangrazio & Cardozo-Gaibisso, 2021; Pangrazio & Selwyn, 2021; Sefton-Green & Pangrazio, 2021).

Media researcher Catherine Page Jeffery reflects that popular Australian parenting discourse around their children's digital usage trends toward an impetus of parents to "simultaneously protect and cultivate their child's development" (2021b, p. 1047) by maximising opportunities for their children to participate in online worlds, adding that, compared to the US and UK models of engagement, "Australia is unique in its approach to both harnessing the benefits of digital media and addressing the risks" (2021b, p. 1048). Jeffrey provides valuable insights into the lived experiences of Australian parental management and mediation of their children's at-home use of so called 'ed-tech' (Page Jeffery, 2022), along with digital media effects on Australian family life (Page Jeffery, 2021a), and social media and digital identity (Jeffery, 2021a; Page Jeffery, 2021b).

There is a robust digital rights community in Australia. Aforementioned academics Amanda Third and Luci Pangrazio are notable mentions (and often collaborate with UK-based leading digital rights advocate Professor Sonia Livingstone), as well as key recent work by Curtin Law lecturer and researcher Anna Bunn, who discusses the implications of *Article 17 of the EU General Data Protection Regulation (GDPR) Right to Erasure*, commonly referred to as the 'Right to be Forgotten', and how similar legislation may benefit Australian children (2019). Further, Bunn argues for a national take-down scheme for unwanted images of children, including intimate pictures and cyberbullying material, and argues that children's lack of control in these areas constitutes issues of developmental harm, as well those of privacy (Bunn, 2021).



Recently in Australia, several larger research studies have been established regarding children's ongoing engagement with digital technology. These include the ongoing 2020 UNSW Gonski Institute longitudinal study *Growing Up Digital Australia* and multiple projects spearheaded by the ARC Centre of Excellence for the Digital Child, which was established in February 2021 and is the current leading Australian research body regarding the digital lives of young Australian children.

### ARC CENTRE OF EXCELLENCE FOR THE DIGITAL CHILD

Members of the Centre for the Digital Child (CDC) are research leaders in their fields at six leading Australian Universities including Queensland University of Technology (QUT), Curtin University, Edith Cowan University, Deakin University, the University of Queensland and the University of Wollongong. With 143 Australian and International academic members, ranging from established academics to PhD candidates, the CDC began operations in 2021 and have commenced the first study in the world to investigate young children's digital engagement at a population level, documenting and tracking patterns of digital engagement of more than 3000 Australian families and their children from birth to eight years of age. The Centre has three main areas of relevance to children's digital lives: the *Healthy Child*, *Educated Child*, and *Connected Child*. Many of the CDC's projects are cross-disciplinary, and, given its commencement in 2021, still ongoing. Through the Digital Child Blog, the centre publishes updates from researchers about the main projects; the blog aims to reach parents, carers and professionals who guide and support children, and who want to know more about young children and their engagement with digital technologies. Of relevance to this study, recent posts include: aforementioned Associate Professor and Director of the Digital Media Research Centre at QUT, Michael Dezuanni's valuable definition of digital citizenship and discussion of an ongoing research project promoting digital citizenship in early years (age 3–5) programs and Australian primary schools (2022); Deakin University's honorary arts and education fellow, Rebecca Coles, discussing the Centre's *Children, media and parenting in the COVID-19 Pandemic (Pandemic parenting)* project (2022); and University of Wollongong Professors Lisa Kervin, Irina Verenikina, and/or Clara Rivera's discussion of encouraging imaginative digital play through assessment of innovative play apps for children (2022). The blog provides useful updates as to the Centre's ongoing research projects and data collection. The Centre's focus on supporting parenting of children in online worlds through these projects described on their blog is directly of relevance to supporting children's digital citizenship and participation.



## UNSW GONSKI INSTITUTE FOR EDUCATION

Professor of Educational Policy and Deputy Director of the Gonski Institute, Pasi Sahlberg, discusses Phase I data from the *Growing Up Digital Australia* project showing 3 out of 5 Australian educators observed tired students with a general decline in student's focus and ability to stay on task (as cited in Duggan, 2020), as well as a general feelings of concern from educators that increased digital usage was negatively impacting upon "social and emotional competencies, especially their ability to form and maintain relationships" (Graham & Sahlberg, 2020, p. 14). Sahlberg revealed in an interview about the ongoing data collection, "we are able to identify a trend that is telling us that the number of children with a range of challenges related to behaviour and also social connections in school – and eventually learning – has increased" (as cited in Duggan, 2020 para 8). Whilst Sahlberg added that the results in the *Growing Up Digital Australia* study "cannot prove in this research that these things would be because of the high levels of usage of media and digital technologies...[however]... the data is pointing much, much more to these problematic challenges that we have among our young people today, than the opportunities and strengths (offered by technologies)" (as cited in Duggan, 2020 para 7). Reading the report itself, however, shows a more contextualised view of gathered data from Gonski Institute research fellow, Amy Graham and Sahlberg, who note in two of their four key messages that:

The key response to these observed changes must be to help children adopt and learn ways of living responsible, safe and healthy lives in the digital world around them. This is not achieved by allocating blame or banning technologies (like smartphones), but by mindful education and working together on smarter sustainable solutions. Children living with, and using, media and digital technologies is a dynamic issue and must be better understood by parents, teachers and young people themselves. (Graham & Sahlberg, 2020, p. 2)

Primarily with a European perspective on data and usage, Monash Law Professor and Australian researcher Janice Richardson and co-author Elizabeth Milovidov have produced a comprehensive *Digital citizenship education handbook: Being online, well-being online, and rights online (2019)* that goes some way to addressing the kinds of issues Sahlberg refers to in the Gonski report. Richardson notes: "As digital technologies are disruptive in nature and constantly evolving, competence building is a lifelong process that should begin from earliest childhood at home and at school, in formal, informal and non-formal educational settings" (2019, p. 11). Richardson and Milovidov emphasise the importance of these interventions further in a valuable summary of building digital citizenship competencies across 10 digital domains, arguing that by "building on core competences such as listening, observing and valuing human dignity and human rights, we learn to value cultural diversity and develop a critical understanding of language and communication" (Richardson & Milovidov, 2019, p. 15).

## NGO and industry

Some Australian NGOs and Industry of prevalence in the realm of digital safety and citizenship have already been mentioned in this review regarding their supporting role in partnering with Government to develop materials and resources for educational and awareness purposes. These have included the ESA, Edtech organisation CODE, Common Sense Education (videos and resources about Privacy and Security), Project Rokit (organisation challenging cyberbullying and bad behaviour online), Mozilla, DQ Institute, Optus *Digital Thumbprint* (curriculum aligned workshops on responsible digital engagement), and the Behavioural Insights Team (NGO consulting firm). Also, relevant mentions are professional associations affiliated with the CDC including the *Australian Association for Research in Education (AARE)*, *Children and Media Australia (ACCM)*, *Child Australia*, *Early Childhood Australia*, and the *Smith Family*.

### EARLY CHILDHOOD AUSTRALIA (ECA)

The peak industry body Early Childhood Australia have a *Learning Hub* (ECA, n.d [2014]) containing a digital documentation and technology series exploring multiple family, educator and leadership team perspectives, including the following topics: *Contemporary communication and engagement expectations*; *Capturing the child's voice*; *Respectful relationships and ethical processes*; *Family partnerships and collaboration*; and *Demonstrating an awareness of children's interests and using contemporary technologies to enhance learning experiences*. ECA also features third-party expert collaborations, most notably three 50-minute online modules developed with the eSafety Commissioner titled: *eSafety Early Years: We say and Share* (n.d [2022]-b), *eSafety Early Years: We WATCH and EXPLORE on technology* (n.d [2022]-c), and *eSafety Early Years: Creating a safe online environment* (n.d [2022]-a).

### AUSTRALIAN ASSOCIATION FOR RESEARCH IN EDUCATION (AARE)

The Australian Association for Research in Education (AARE) publish a scholarly journal *The Australian Educational Researcher (AER)* and also support a regular AARE conference, which generates a significant cache of research papers relevant to children and digital media that are available on their website in their Conference Paper Archives (AARE, 1978–2022). The AARE also have a blog, and recent posts regarding children's digital citizenship include ongoing details of Gonski Institute research activities regarding very young children's use of digital devices (Schriever, 2021), children as content creators during the pandemic (Jacobs, 2020), and concerns about data harvesting by schools via apps and commercial software (Manolev et al., 2019).

## CHILDREN AND MEDIA AUSTRALIA (CMA)

Children and Media Australia (CMA) provide comprehensive parent guides, listing many resources and tip sheets for parents on a wide range of topics relevant to digital citizenship, including digital screentime, safety, wellness, and social and emotional development. They are organised into four large overarching categories: *Development Stages*, *Impact of Content*, *Media and program types* and *Parent Strategies* (CMA, n.d). Many of these are one-page tip sheets that are easy to digest, and with academic references provided. Most are usefully hyperlinked. The CMA also produces *Small Screen*, "a unique monthly review of the latest events, press clippings, new and proposed legislation changes, seminars and conferences, publications, and research into the effects of films, television, video games and new media on children - it identifies problem areas and highlights positive developments"(CMA, 2008–2022 para 1). This is available on paid subscription, with back copies available online free of charge. Many are of relevance to enabling digital citizenship. A Privacy Law page with links to advocacy for stricter media codes and advertising is also present, and very comprehensive. Under the research tab, CMA lists researchers who specialise in children and the media in both Australia and global contexts.

## THE ALANNAH AND MADELINE FOUNDATION AND DOLLY'S DREAM

The Alannah and Madeline Foundation, an anti-violence non-profit organisation (6 year old Alannah and 3 year old Madeline Mikac were victims along with their mother in the infamous Port Arthur Massacre) runs two programs of relevance to developing digital citizenship including the *eSmart* program (n.d [2022]), and has links to *Dolly's Dream* (2021), an anticyberbullying and youth suicide initiative founded by parents Tick and Kate Everett in memory of daughter Amy Jayne 'Dolly' Everett, an Australian teenager who died by suicide after becoming the victim of cyberbullying. The *eSmart* program features the *eSmart Digital Licence* (an online learning tool for children), *eSmart Media Literacy Lab* (literacy resources), *eSmart Connect* (Workshops in cybersecurity and privacy for schools and families), as well as a reference library for parents, schools, and children. *Dolly's Dream Foundation* runs the *Dolly's Dream Support Line*, *Dolly's Dream Workshops* (cyberbullying workshops for schools), hosts a *Family Tech Plan*, and runs *DigiPledge* (online safety modules for families and individuals).

## THE SMITH FAMILY

The Smith Family is a national and independent children's charity assisting disadvantaged young people with their educational needs and resources. Relevant to digital citizenship is the Smith Family's Online tutoring program *Catch Up Learning Pilot* (2021) providing targeted tutoring support for disadvantaged children and access to devices during the COVID 19 pandemic. The Smith Family research report is provided

online, along with several reports regarding material deprivation in Australia amongst households living in poverty. The Smith Family is also connected to the *Young ICT Explorers* (YICTE), a non-profit competition created by software producer SAP, supported by CSIRO Digital Careers and The Smith Family with the help of Industry and University partners across Australia. YICTE encourages primary and high school students in years 3–12 in Australia and New Zealand to solve real-world problems or showcase their passions using technology. The yearly competition lets teams of up to four students or individuals create a tech project and detailed report for judging and awarding of prizes. Entries devised by children have included innovative drones, bots, and inventions for medical use.

Although many government and educational bodies utilise resources and Edtech produced by international companies such as Common Sense and CODE, there are some notable Australian based Edtech companies including Evolve Education (n.d [2022]), who primarily provide workshops and resources to schools about online privacy, safety and well-being. Jacaranda Publishing (n.d [2022]) have also branched out into the online learning world and provide digital citizenship courses and resources to schools and early learning centres. For example, the Jacaranda Online Learning group provide an online *Cyberpass* to schools for \$10 per student login, which contain materials aligned with the Australian Curriculum.

## Conclusion

As Klaus Schwab argues in his book about technology in the modern age, *The Fourth Industrial Revolution* :

Shared understanding is particularly critical if we are to shape a collective future that reflects common objectives and values. We must have a comprehensive and globally shared view of how technology is changing our lives and those of future generations, and how it is reshaping the economic, social, cultural and human context in which we live. (Schwab, 2017, p. 2)

India, the Republic of Korea, and Australia are vastly different geographically, socioeconomically and culturally, but all have in common governments, education bodies, academia, and NGOs who share a wish to protect young children from harmful content and behaviour online. Protectionist attitudes appear to be more prevalent in India and Korea, whilst Australia—still maintaining a robust program of government and educational initiatives to tackle these threats—appears to focus more on the positive affordances of children's digital engagement. Australia is currently more proactively engaged with developing digital citizenship education and participation for young children than India and Korea. However, from eLearning to utilitarian needs, each country has a generally effective focus on tools to both combat and prevent

elements of danger detrimental to the development and enactment of children's digital citizenship. As the *DQ Global Standard Report* reiterates, "digital citizenship is a set of fundamental digital life skills that everyone needs to have" (2019a, p. 15), and all three countries – India, Korea and Australia – have displayed a commitment to providing opportunities for their youngest citizens to develop digital life skills on more than a cursory level, most commonly through digital citizenship frameworks of varying dimensions, suggesting a significant investment by each in the enhancement of children's digital lives.

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