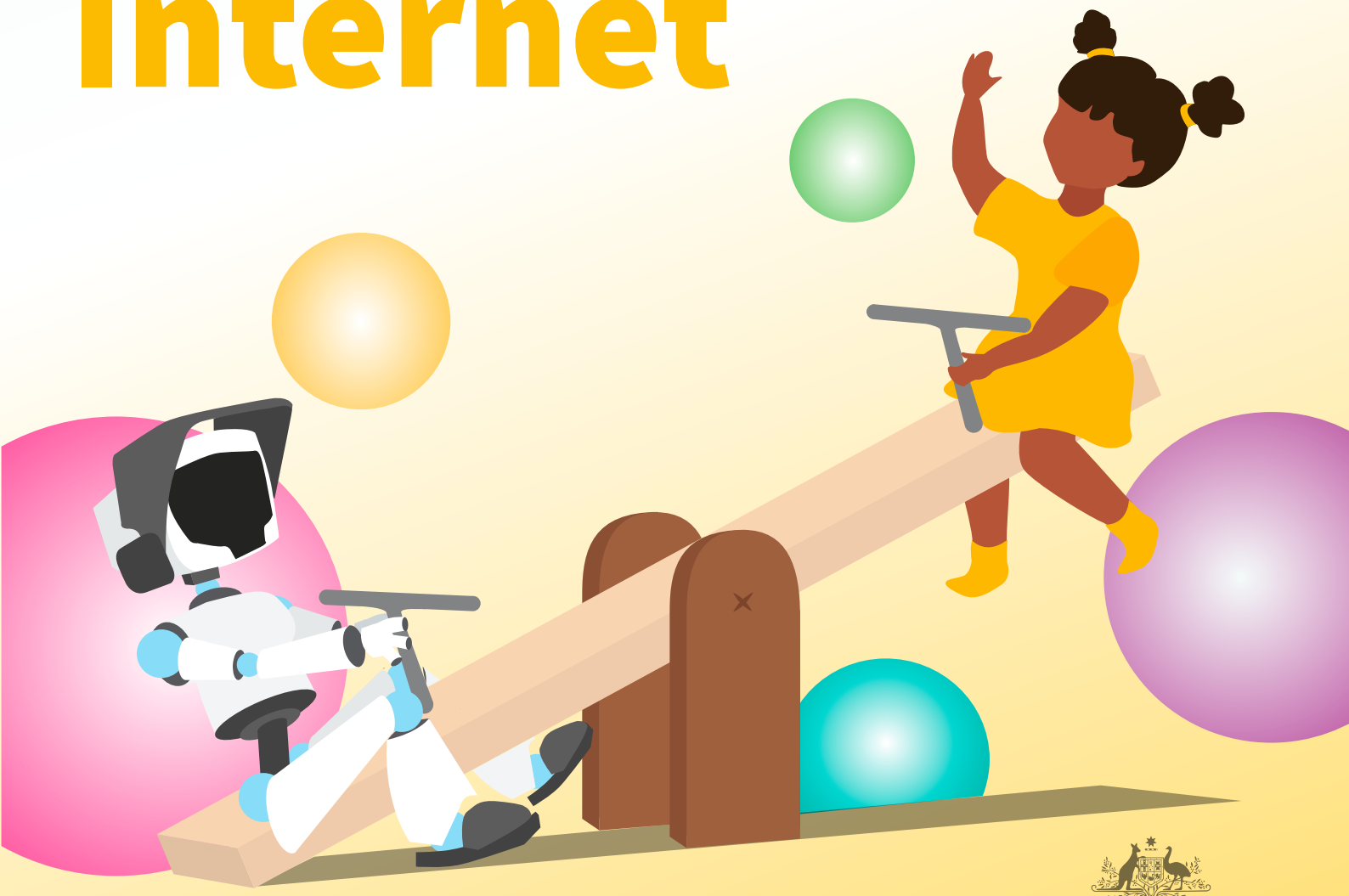
AUSTRALIAN RESEARCH COUNCIL
Centre of Excellence for the
Digital Child

Manifesto for a better Children's Internet



Australian Government
Australian Research Council

DIGITAL CHILD WORKING PAPER SERIES 2023 - 11

Table of Contents

AUTHORS
Michael Dezuanni (Queensland University of Technology)
Aleesha Rodriguez (Queensland University of Technology)
Julian Sefton-Green (Deakin University)
Tama Leaver (Curtin University)
Anna Bunn (Curtin University)
Anna Potter (Queensland University of Technology)
Rys Farthing (Reset Australia)
Aimee Hourigan (Queensland University of Technology)
Luci Pangrazio (Deakin University)
Kate Mannell (Deakin University)
Kristy Corser (Queensland University of Technology)
Sue Bennett (University of Wollongong)
Amanda Levido (Queensland University of Technology)
Xinyu 'Andy' Zhao (Deakin University)
Rebecca Ng (University of Wollongong)
Guy Healy (Vrije Universiteit Brussels)
Rebekah Willett (University of Wisconsin-Madison)

SUGGESTED CITATION
Dezuanni, M., Rodriguez, A., Sefton-Green, J., Leaver, T., Bunn, A., Potter, A., Farthing, R., Hourigan, A., Pangrazio, L., Mannell, K., Corser, K., Bennett, S., Levido, A., Zhao, X., Ng, R., Healy, G., & Willett, R. (2023). Digital Child Working Paper 2023-11, *Manifesto for a Better Children's Internet*. Australian Research Council Centre of Excellence for the Digital Child, Queensland University of Technology.

ISSN/DOI
ISSN: 2653-5270 DOI: https://doi.org/10.26187/q42e-6047

KEYWORDS
Children's Internet, digital childhood, child rights, political economy, digital inclusion, public imaginaries, edtech, entertainment, regulation, digital participation

ACKNOWLEDGEMENT/S
This document was supported by the Australian Research Council Centre of Excellence for the Digital Child (grant #CE200100022). The Centre and authors acknowledge the First Nations owners of the lands on which we gather and pay our respects to the Elders, lores, customs, and creation spirits of this country.

We also acknowledge the contributions of:

- *The Connected Child program at the Australian Research Council Centre of Excellence for the Digital Child.*
- *Cate McQuillan (dirtgirlworld and Get Grubby TV), David Kleeman (Dubit), Michael Carrington (Carrington Media), Jenny Buckland (Australian Children's Television Foundation), Matt Deaner (Screen Producers Australia), Lauren Glina (A.gap.e), Andrew Duval (Frankenstories), Adam Weber (TrueWell), Joey Egger (DEPT®/FAMILY (APAC)), Todd Hutchinson and Damian Fontana (Two Moos/DEPT®).*
- *Report Graphic Design and Illustration: Kiara Fourie*

Executive Summary

It is useful to think about the digital products, services, and content that children experience online as the Children's Internet. There are numerous things we can do to create a better Children's Internet for the future. As a society, we will benefit from an ongoing public conversation about how to create better children's internet experiences. After all, a better Children's Internet makes a better Internet for all, prompting us to consider what it really means to have fun, productive, safe, diverse and ethical internet experiences.

The purpose of this document, then, is to investigate the elements and characteristics of the Children's Internet and to show how to make it better for future generations of children. In particular, we are interested in the following, noting that these form the basis for the six sections of this document:

- **Accessing the Children's Internet.** Children access the internet through an array of digital products, services, and content that are both specifically made for children, and not intentionally made for them. Importantly, not all children have the same access to the internet and digital experiences.
- **Imagining the Children's Internet.** As a society, we tend to imagine that children should have particular kinds of internet experiences. These imaginaries appear in public, media, and policy discussions and debates about children's internet use. These discussions, however, are often polarised between the risks and opportunities for children being online and often fail to reflect the realities of children's internet experiences.
- **The Children's Internet as commercialised entertainment.** Children's entertainment and social connections are shaped by commercialised technology and media industries. The media and entertainment environment is now more complex than ever and structured through an ever expanding range of business models, which families have to navigate.
- **The Children's Internet as commercialised learning and education.** Technology is often promoted to parents as being necessary for children's learning and development. Schools and education systems make choices about which technology companies' products to use. There is frequent hype about the ability of technology to revolutionise learning, but these claims are often unfounded.
- **Regulating the Children's Internet.** Children's internet experiences are constructed and governed through numerous intersecting conventions, regulations, policies, legal standards and social norms. A key challenge for enhancing children's internet experiences is striking a fair balance between government regulation, technology company policies, and personal responsibility.
- **Children and Families co-creating the Children's Internet.** Children are co-creators of the Children's Internet through their participation with digital products, services, and content. By extension, parents, carers, and families also co-create the Children's Internet as they share information and enable their children's digital participation. Developing media literacy in an ongoing way is important for both children and families to succeed online.

Based on our investigation of these six elements, we have developed a set of principles to achieve a better Children's Internet which we intend as a call for action for industry, governments, community leaders, decision-makers, educators, researchers, advocates, parents, and families.

Principles for a better Children's Internet

The Children's Internet is here and we believe that a better Children's Internet is possible. To achieve this we need to change how digital products, services, and content are thought about, made available, designed, sold, regulated, and used to invite children to participate online. This requires industry, governments, community leaders, decision-makers, educators, researchers, advocates, parents, and families to strive for a better Children's Internet. Based on the evidence presented in this document, a better Children's Internet calls for:

1. The availability of **free and high quality** Children's Internet experiences.
2. The development of **quality standards** for age-appropriate entertainment and educational products and services for children.
3. Clearer advice and better mechanisms for **age-appropriate access and use** of products and services for children and families.
4. Less focus on protecting children from the digital environment and more focus on **protecting them *within* the digital environment.**
5. Accessible **consumer information** for families to allow them to make informed choices about digital products and services for children.
6. **More investment** in locally produced, diverse, and highly quality entertainment and educational products and services for children and families.
7. The development of products and services that **increase access** and use of digital technologies for children at risk of digital exclusion.
8. **Avoiding** the tech entrepreneurial philosophy of **'move fast and break things'** when developing products and services for children.
9. **Timely and appropriate consultation** with children and families when products and services are being developed.
10. Schools and education systems to develop **better processes for selecting digital resources** for classroom use.
11. School and education systems to be as **technology agnostic** as possible.
12. Better quality control of products and services that are **labelled as 'educational'** within the major app stores.
13. Regulation that strikes **a fair balance** between government policy, technology company policies, and personal responsibility.
14. A move away from the **over-reliance on 'parental controls'** as the solution to managing or improving children's online experiences.
15. **Full transparency and minimization of data** being collected from children; and avoiding the commercialisation of children's data.
16. Legislation to ensure the **recognition and protection of children's digital labour.**
17. The **promotion of media literacy** to support children's fun, productive, safe, diverse and ethical internet experiences.

Why a Manifesto for a better Children's Internet?

Today's children[1] are immersed in internet enabled and mediated experiences from the moment of birth. The Internet[2] allows children to watch videos and television; listen to music; create new digital artefacts; check the weather on voice-activated devices; speak to their grandparents in other parts of the world; play games on devices and gaming consoles; download and use learning apps; communicate with their friends; use digital toys and much, much more.

The Internet provides children with a multitude of positive and pleasurable opportunities, including entertainment, social connection, and learning opportunities. The Internet has enhanced children's lives in many ways and we recognise that it will continue to play an important role as they move through childhood, into their teen years and adulthood. Online experiences will be central to how they learn, the careers they undertake and how they experience everyday life throughout the 21st century.

Online experiences, however, are not always well designed, well regulated, or good for children. They are sometimes exploitative, risky and problematic. The Internet was not created with children's interests and needs in mind. In addition, the Internet is made up of non-neutral technologies. Its products, services and experiences are often commercialised, they are largely self-regulated and their governance is often opaque.

We use the term the 'Children's Internet' as a unifying concept that can act as a reminder that children have a right to Internet experiences that are playful, exploratory, fun, entertaining, positive, and educational. We use the term as a purposeful provocation and as a means to investigate how children's online and digital media experiences may be improved over time. The Children's Internet places children at the centre of our considerations about how to continue to improve the Internet. We argue throughout this document that a better Children's Internet is possible and essential.

Many of the ideas in this document have a history that precedes the Internet. For well over 100 years, children have experienced media lives via radio, the cinema, television, comics, and video games. In part, this document is inspired by the idea of Children's Television and the different ways it has been understood over the past 40 years as production, programming, policy, and values.[3] As television emerged as an economic and cultural force in the 1950s and 1960s, and became highly popular with children, it was the focus of intense debate, scrutiny, and policy intervention around the world.

1 This document focuses on children aged 0-12. As we will show, children have unequal access to the benefits of digital media.
2 The 'Internet' is a metaphor for the complex networked technologies that assemble digitally mediated experiences. The Internet is made up of a network of computers, cables, and open protocols and is also experienced as a media-rich environment accessed through a wide-range of digital products and services.
3 Potter & Steemers (2017).

We believe that the kinds of attention paid to children's television in the past provide valuable lessons for the post-broadcast, Internet era. The focus on public good and 'good childhoods' inherent in the approach to children's television provide inspiration for how we can imagine a better Children's Internet. We understand that the decentralised nature of the Internet poses particular challenges, but we also believe that it is essential to explore alternatives to the economic and regulatory frameworks that currently dominate how Internet-based experiences are offered. The Children's Internet recognises both the continuities of legacy media as they have moved online and children's experiences of media specifically designed for digital platforms, such as virtual worlds, social media, and automation.

The Children's Internet is an idea that can be used to challenge industry, government, and various stakeholders to reflect on how digital products, services, and content are thought about, made available, designed, sold, regulated, and invite children to participate online. We have developed this document for four key audiences who, we argue, have the responsibility of ensuring the continual improvement of children's internet experiences:

- Leaders and designers in technology and media companies, and content creators, who play a crucial role in the development of products and services for children;
- Policy and decision makers who are in a position to create legislation, policy and guidelines to improve the Children's Internet;
- Parents, carers, educators and community members who represent children's interests; and
- Fellow researchers with an interest in understanding the priorities for future research about the Children's Internet.

This Manifesto is a call to action to create a better Children's Internet. The principles outlined at the beginning provide clear guidance for industry, governments, parents, and researchers to take action on improving children's internet experiences. This goal of a better Children's Internet will not be realised unless there is broad agreement amongst adults that we need to do more to ensure that children have fun, productive, safe, diverse, and ethical internet experiences. We call on you to consider your role in shaping a better Children's Internet.

Approach and Methodology

In this document, we take a 'political economy' approach and therefore our focus is on the economic, social, cultural and political impacts of how the Children's Internet is assembled and functions. The methodology that informs the findings of this document consisted of a consultation process with the broader team, mapping the products and services available to children through the internet, and interviews with industry experts, who are quoted throughout the document. For a comprehensive description of the methodology, please refer to the Appendix.

Our Australian perspective

As researchers based within the Australian Research Council Centre of Excellence for the Digital Child,[4] we draw on many Australian examples throughout this document. We recognise the specificity of the Australian context and that it provides a particular perspective on the Children's Internet. Where appropriate, we also draw on international examples. In addition, the positions expressed throughout this document are the opinions of the authors, informed by the methodology outlined above.

4 https://www.digitalchild.org.au/

1

Accessing the Children's Internet

To move towards a better Children's Internet we need to consider and accommodate the many ways that children access digital products, services, and experiences. This section highlights that:

- digital technologies play a significant role in the lives of children with access to the internet
- children access digital products, services, and experiences that are designed both for them, as well as those not intended for them (i.e., designed for adults)
- due to digital exclusion, not all children have the same opportunities to access Internet-based experiences
- there is limited information about what technologies children are using in their homes, schools, and leisure spaces.

To begin conceptualising the Children's Internet we found it useful to imagine how children might experience a range of digital products and services that access the Internet. To do this, we drew on recent data about the devices children access in Australian households (see details further below) to visualise the day-in-the-life of a 'typical' child growing up in a 'teched-up' family in Australia (see Figure 1). This illustration includes a range of devices including a smart speaker, TV, and tablet, as well as an array of digital products and services such as YouTube Kids, Minecraft, and Find My Friends. Of course, this illustration does not capture all the products and services available to children nor does it make transparent all the invisible processes that generate the Children's Internet, such as the data generated and collected through the use of these products and services. Neither does it encapsulate the everyday experiences of all children. However, we hope that this illustration aids the process in thinking about the many digital products and services that constitute the Children's Internet.

Figure 1: *A day-in-the-life visual representation of the kinds of digital products and services that a 'teched-up' child growing up in Australia might access.*

In this section we begin to map out what the Children's Internet is. This is achieved by describing the digital products and services designed specifically for children, products and services not intentionally made for children but which are popular, and 'child-friendly' adaptations of products and services designed for adults. We then begin to describe the complex business models that underpin the products and services that families most often buy into, before highlighting that the Children's Internet is currently not always representative, accessible, and inclusive of all children.

Products and services likely to be used by children

A significant challenge when thinking about the Children's Internet is the diversity of the kinds of Internet products, services, and experiences that children may be using, whether these have been designed for children or not. To address this, we identify three broad categories of products and services children are *likely* to use (Table 1). For now, our aim is to provide a 'helicopter view' to which we will add more detail and nuance throughout the remainder of the document.

Likely to be used by children	Indicative examples
Products and services made for children	Children's television Children's films Child-focused virtual worlds Digital content made for children, including new entertainment genres EdTech and digital learning products Digital Toys and services
Products and services not intentionally made for children, but which are highly popular with children	The main YouTube service Minecraft Roblox ChatGPT Smart Speakers
Adaptations of services originally designed for adults	Netflix Kids YouTube Kids Spotify Kids Messenger Kids

Table 1: *Categories of Internet products and services likely to be used by children.*

Products and services made for children

The most obvious way to identify products and services that constitute the Children's Internet is to consider examples that are identifiably made for children. Over the past decade, a range of content has emerged on digital platforms like YouTube, which has been specifically produced for children on both YouTube Kids and the main YouTube service. Although YouTube's Terms of Service (ToS) require users to be aged 13 years or older to open an account, children are able to watch the main YouTube service without an account and children under 13 can access YouTube Kids through an adult's account. Content produced for children on YouTube is often made by creators whose channels claim to be 'family friendly'. Children's content channels, including those aimed at toddlers, are frequently amongst the top performing YouTube Channels. As of September 2023, three of the top six most watched YouTube channels internationally have children's audiences, including: Cocomelon-Nursery Rhymes (167 billion views), Kids Diana Show (94 billion views) and Like Nastya (91 billion views). [5] While these and other 'family friendly' YouTube channels are clearly popular, it's important to underscore that popularity does not necessitate quality. And it is crucial in working towards a better Children's Internet that we consider what constitutes quality experiences for children.

YouTube applies its own 'quality standards' regarding content directed to children

5 Social Blade (2023).

on both their main and YouTube Kids services. Under *Best practices for kids & family content*,[6] YouTube lists the principles that *should* guide the production of 'high-quality' content—that is, "age-appropriate, enriching, engaging, and inspiring" media. YouTube also outlines what is deemed as 'low-quality' content for children, including videos that are 'heavily commercial' (e.g., shopping hauls), 'deceptively educational' (i.e., content that claims to be educational but lacks explanation) and the 'strange use of children's characters' such as those present in the 'Elsagate' controversy (see Case Study 1). In working toward a better Children's Internet, we welcome YouTube's approach of identifying quality standards and incentivising content creators to uphold these principles.[7] However, this approach on YouTube has room for improvement as tensions still exist between the platform's business models (e.g., creator advertising) and its standard of regarding 'heavily commercialised' as low quality content.[8] It matters that YouTube, and other digital services that children engage with to access free 'made for kids' content, strive to encourage the production of high quality content because this is what constitutes a large amount of children's digital experiences.[9]

Case Study 1: The 'Elsagate' controversy

A significant anxiety for adults is that children will access inappropriate content on the Internet, including harmful or sexually explicit content. An example that caused concern was the 2017 'Elsagate' controversy in which inappropriate videos targeting children were uploaded to both YouTube and YouTube Kids. The videos featured characters from popular children's films, such as from Frozen and Spiderman, but used content and themes that were inappropriate for children, and sometimes included violence and sexualised material.[10] A widely shared article by James Bridle called 'Something is Wrong on the Internet' [11] led to the controversy that called for YouTube to take a more proactive role in ensuring its services were child-friendly. YouTube's *Best Practices for Kids & Family Content* principles, including the identification of 'strange use of children's characters' (such as those present in the Elsagate videos) as 'low-quality' content, is a step in the right direction. According to YouTube, the quality principles directly affect the visibility of channels—that is, 'high-quality' content gains greater reach and channels with a strong focus on 'low-quality' content directed at children may be suspended—which, in turn, incentivises *all* channels to avoid the production of problematic content.

6 YouTube Help (2023).
7 YouTube states that high quality 'made for kids' content will be recommended more and channels with "a strong focus on low-quality 'made for kids' content" may be suspended from the YouTube Partner Program.
8 For example, the popular genre amongst children of 'toy unboxing' on YouTube sees commercial products being unboxed on camera. This 'toy unboxing' can be lucrative for both the content creator and YouTube, as the content effectively advertises commercial products.
9 Marsh et al., (2019).
10 Di Placido (2017).
11 Bridle (2017).

Children not only access video content on the Internet, they also access virtual worlds. Over the years, a number of virtual worlds have been created specifically for children and young people, including services such as Neopets, Webkinz, Habbo Hotel, and Club Penguin. These online services often aim to operate as 'walled gardens' for children, a concept we return to in Section 2, as they are designed to provide children with opportunities for safe online interactions with other children; yet this has often proven difficult.[12]

Lastly, children have digital experiences made for them, with products and services that aren't normally thought of as 'online only'. There are a range of Internet-connected toys and devices that have been produced for children in recent years. This includes the artificial intelligence (AI) enabled 'Hello Barbie'; the 'Furby Connect' plush toys and associated app; and the Fitbit 'Activity Tracker for Kids'. These types of technologies, specifically those that integrate AI technologies like ChatGPT, [13] such as Miko 3, [14] are projected to grow in market value by nearly 15% by 2030. [15] The rise of these digital, but not exclusively virtual, products further demonstrates the layered ways that Children's Internet is constructed.

Products and services not intentionally made for children, but which are popular with children

Children have long been drawn to media content and experiences made for adult audiences. In her classic 1980s study of Australian children's interactions with television, Patricia Palmer showed that while children regularly watched shows made specifically for them, they also liked to watch shows that were popular with adults, such as 'Prisoner' (a soap opera set in a women's prison), 'A Country Practice' (a soap opera set in a country town's hospital); and 'Knight Rider' (an action crime drama featuring an AI enabled car).[16] More recently, the most popular shows with children under 14 include 'Australian Ninja Warrior', 'Little Big Shots', 'I'm Celebrity Get Me Out Of Here' and 'The Block'. [17] These viewing trends demonstrate that children not only interact with content and experiences that are designed for them but also enjoy media that may be intended for older young people or adults.

Children frequently co-view the content their parents and carers consume, including television programs and movies, music, and the news. As noted above, although the main YouTube service is not intended for children under 13 years of age, it is highly popular with younger children.[18] Similarly, popular virtual worlds such as Minecraft and Roblox games like 'Adopt Me!' were not intentionally created for younger children, but both have become highly popular among that demographic.[19]

Children also access internet-enabled productivity and creativity technologies that are not necessarily designed for children's play. These technologies include smart speakers, where children are known to ask 'Siri' or 'Alexa' questions or to tell them a joke; [20] AI filters on mobile apps, such as the popular 'puppy dog' filter on Snapchat; [21] and generative AI models like MidJourney, which uses text-prompts to generate images.[22] All these examples illustrate how children experience the

12 For instance, Club Penguin (owned by Disney) was discontinued in 2017 in part due to the ongoing cost of moderating behaviour and content on the platform (Tidy, 2020).
13 ChatGPT by OpenAI, is a form of generative AI that uses large language models (LLM) to complete tasks and answer questions.
14 https://miko.ai/
15 Future Market Insights (2022).
16 Palmer (1986).
17 FreeTV Australia (2017).
18 Marsh et al., (2019)..
19 Mavoa et al. (2017).
20 Foster (2019).
21 Kircher (2016).
22 https://www.midjourney.com/

internet through products and services not necessarily intended for them. In moving towards a better Children's Internet, we need to keep in mind the blurry boundary of what constitutes the Children's Internet and work towards accessible consumer information so families can make informed decisions about what their children access.

Adaptations of products and services originally designed for adults

In recent years we have seen the rise of child-specific adaptations of services originally designed for adults. As mentioned above, YouTube Kids is the 'child-friendly' version of the main service of YouTube, and other companies continuing this trend include Netflix with its supported Netflix Kids account, Spotify Kids, and Messenger Kids, introduced by Meta (Facebook's parent company). In each of these examples, a children's app or online profile is offered that is separate to the general or main service that is intended for teenagers and adults. These efforts to create 'kid-versions' of popular digital products and services is an attempt to make age-appropriate internet experiences for children.

These separate digital spaces have their own policies, protocols, and parental features which restrict and govern the types of content, interactions, and experiences children can access. For example, many adaptations of digital services designed for children boast parental controls that allow carers to oversee the content accessed and monitor the types of online interactions children have (e.g., Meta's parental control for Messenger Kids [23]). Additionally, these adaptations are marketed in playful ways and often have a distinct child-like aesthetic (e.g., the user interface of YouTube in comparison to YouTube Kids). But while these adaptations of products and services have their own specific policies and aesthetics, they are still embedded within and subject to the governance structures and business models of the platforms that create them. For many Silicon Valley based companies that produce these adaptations, including Messenger Kids, YouTube Kids, and Netflix Kids, this means that the products and services are created through a particular culture that champions speedy innovation and market disruption. Known as 'move fast and break things', this mindset drives the tech entrepreneurial imaginary—a concept explored in Section 2—and in working towards a better Children's Internet, the ethos of moving quickly to produce children's adaptations of popular online platforms is highly problematic. This is because high quality children's internet experiences require careful consideration and timely consultation with children and families, to champion their best interests.

23 Brown (2020).

Case Study 2: The 'Instagram for Kids' controversy

In early 2021, news leaked that Meta (formally Facebook) was intending to build 'an Instagram for kids under the age of 13'. [24] Instagram is a popular photo and short-video sharing platform. The news that Instagram had an 'Instagram Kids' [25] in the works, led various stakeholders to express their opposition—to the point that only six months later the head of Instagram, Adam Morsseri, announced that Instagram was pausing development of Instagram Kids. [26]

Instagram's interest in developing a 'kids' version of its popular app galvanised public debate and challenged the boundaries of what parents, policy makers, politicians, health professionals, and other concerned adults will accept from a commercial social media platform. The public outcry to Instagram Kids is an exemplary instance of contemporary anxieties about the role of social media in children's lives. In particular, concerns about its potential impacts on children's health and wellbeing and on privacy and safety were raised as key concerns. But moves to restrict children's access to digital services are often reactionary and fueled by moral panics and this can obscure the opportunity to have productive conversations about how social media for children under 13 could be made, with the best interests of children at the centre.

Age-gating access

Many digital products and services restrict use by children below a certain age, typically aged 12 or under. This is often implemented by companies to ensure compliance with laws, such as the US's Children's Online Privacy Protection rule (COPPA).[27] Many social media platforms, for example, like Instagram and TikTok, set 13 as the minimum age for users. Some platforms stipulate that children must be even older than 13—for example, Roblox has introduced experience guidelines for 17+, to complement its guidelines for younger users.[28] This process, known as 'age-gating' is often managed through sign-up processes where a date of birth or credit card details need to be entered to create an account. Services like YouTube Kids explicitly ask whether the user is a child and requests that an adult signs-up on their behalf.

Some proponents of online child safety argue that age-gating processes are too easily overcome (for example, by children falsifying their age) and that extra measures—ranging from answering simple maths equations to entering credit card details—need to be in place.[29] Others argue that if age-gating is paramount and taken to the extreme, then all users of the Internet, including adults, will need to

24 Mac & Silverman (2021).
25 At different times, the children's version of Instagram has been referred to as Instagram Youth, Instagram Kids, and Insta Kids.
26 Mosseri (2021).
27 United States Federal Trade Commission (2013).
28 Bronstein (2023).
29 Long (2023).

verify their age to exclude children from products and services intended for adults. It has even been suggested that age-gating might be achieved through facial-recognition technology.[30] But the idea of verifying every Internet user through age-gating mechanisms has met with opposition from privacy groups and raises broader questions about how proportionate, risk-based, age estimation processes can be implemented in privacy preserving ways.

In moving towards a better Children's Internet, we call for clearer advice and better mechanisms that support age-appropriate access to products and services for children. And that this guidance for age-appropriate access should recognise that, for example, a five year-old's internet experience should be different to a 12 year-old's, and a 14 year-old's, and a 17 year-old's, etc. Put differently, we need to move away from formalising 13 as the key age that defines children's internet experiences and recognise that quality internet experiences should reflect children's diverse capacities at their various stages of development.

Family purchasing practices

"We predominantly deal with public broadcasters all around the world; if children and families have access to a computer, then most everything we create is cost free. I love that!"

—Cate McQuillen, Creator/Producer of dirtgirlworld and Get Grubby TV

A significant factor in how children experience the internet is their family's ability and willingness to purchase entertainment content, subscriptions and rentals across film, television, games, music and other digital experiences.[31] In this section, we explore some of the ways that these decisions are influenced by how entertainment companies make products available.

Buying into technology ecosystems

A primary economic strategy of large technology companies is to tie their users to their ecosystem through hardware and software compatibility, and by providing financial loyalty incentives. Just as important, though, is ease of use and access to products. It is often difficult to mix and match services and products across ecosystems. A family that has invested in Apple iPads for their children becomes tied to the apps that are available in the Apple App store, rather than those that are available in Google's Play Store. As a result, it is not unusual for families to identify as an Apple or Android family,[32] often further incentivised for product allegiance through systems like Apple's 'Family Sharing'. Where it may be possible to use products and services across ecosystems or platforms, often the 'friction' that this causes—such as the technological or organisational problem solving that needs to occur—makes this a poor choice and often not worthwhile.

As we illustrate in more detail in Section 4 on 'edutainment', problems may arise when schools make choices about ecosystems that conflict with families' choices. A school's decision to 'buy into' the Google ecosystem, including the use of Chromebook laptops, may have implications for a family who is heavily invested in the Apple ecosystem. Similarly, the major gaming companies also aim to encourage families to buy into their ecosystems, particularly aligned to gaming

30 Hardcastle (2023).
31 Recent Telsyte (2022) data found that 49% of children's content is paid for via subscription services.
32 Pangrazio & Mavoa (2023).

consoles and cloud services. Sony (Playstation), Nintendo (Switch) and Microsoft (Xbox, Minecraft) provide bundles and incentives to encourage users to remain loyal to their hardware and software systems. A better Children's Internet would allow families greater freedom to mix-and-match the digital products and services that are best for them.

Family and product bundles

One option for families in the crowded digital entertainment space is the availability of 'family bundles'. These bundles typically allow family members to share services, or enable adults to have control over their children's accounts. Apple's 'Family Sharing', for instance, allows up to five family members in addition to the family 'organiser' to share services, features, and content. In addition, 'Apple One' allows families to get access to several services for a monthly subscription. The Amazon Prime subscription service bundles a range of entertainment services across film and television, music, gaming, and ebooks with shopping and free delivery. Amazon Household (currently available in a limited number of countries) allows family members to share the benefits of Amazon Prime in a similar fashion to Apple's family sharing. Meanwhile, in Australia, a Disney+/Onepass bundle allows subscribers to have access to Disney+ and also get free delivery from a range of stores, including Bunnings, Kmart, and Target.

Children's experiences of internet-enabled entertainment, then, are tied to their family's ability to purchase particular products or to take advantage of the range of offers available in competing ecosystems. This raises questions about access to these offers (i.e., are they locally available?); knowledge about these offers; and whether or not these offers provide genuine value of money (which requires financial literacy). In Section 5, we also discuss the parent labour associated with managing these various systems, including the complexity of dealing with multiple 'parent control' settings across multiple ecosystems.

In-app purchases

A challenge facing parents and carers as their children use mobile devices and apps is the many costs associated with using an app, which is often not a straightforward purchase. Many apps can be downloaded for free, but then present different tiers of experience or access to resources that must be earned or purchased. In many cases, an app will provide a 'freemium' model where the basic service is available for free, but premium features are unlocked through 'in-app' purchasing. In other cases, an app can be used for 'free' but advanced features are only available if the user views advertising (which can be 'switched off' for a fee). In-app purchases can only be accessed through the provision of a credit card or services like Apple Pay and Google Pay.

In-app purchases can be blocked on devices via parental controls which stops children from spending real money without their parents' permission. However, there are several problems associated with in-app purchases. Some apps and games are predatory in the sense that it is not always clear when a purchase is

being made. An example of this was present in the game Fortnite, which is popular amongst children, and parent company Epic Games was recently fined US$245 million by the Federal Trade Commission (FTC) for 'tricking users' into making in-app purchases.[33] Children may not be able to identify when they are accessing in-app purchases as opposed to receiving more general rewards in an app or game. It is also easy for parents and carers to mismanage their children's device settings, or they may allow their children to use their own devices, on which in-app purchases are allowed.[34] Clear consumer information about in-app purchasing is crucial for a better Children's Internet.

Not every child's Internet

We recognise that children have uneven access to the Internet. At the most foundational level, the Children's Internet is made up of the infrastructure and devices that provide access to networked experiences and for some children the Internet is ubiquitous. We can assume that almost all children living in middle to high income households in post-industrial societies have Internet access, unless their families choose to opt out or limit access. We know that in the world's most advantaged countries, 'Internet penetration' is up to 99%. However, the overall global 'Internet penetration' rate is about 64%,[35] meaning that children in many parts of the world are excluded from access. For instance, Internet penetration in Vietnam is 73% and in Kenya it is only 42%.

In post-industrial societies, low income households report having significantly less Internet access than their middle class neighbours, or greater restrictions on their access, for instance through data caps. The Australian Digital Inclusion Index (ADII) averages digital inclusion across three dimensions of access, affordability and ability. In 2023, the Index showed that, of households with less than AU$33,800 income per year, 33% were 'highly excluded' (with an additional 26% 'excluded') and in households with an income between AU$33,800 and AU$51,999, 13% were 'highly excluded' whilst an additional 21% were 'excluded'.[36] Furthermore, a study conducted by the Queensland State Government audit office in 2021 demonstrated that 10% of students in the lowest income bracket had no access to the Internet at home. [37] In addition, 14% of students in this bracket had no access to a computer, laptop, or tablet, and an additional 16% had limited access.

Digital exclusion is also compounded across demographic and geographic factors. In Australia, many regional and remote households continue to have limited Internet access, with a significant number relying on satellite connectivity. Further, the ADII shows that Aboriginal and Torres Strait Island peoples, Australians with disability, less educated Australians, and those living in rural and remote locations are more likely to be digitally excluded. Digital inclusion is also gendered.[38] In moving towards a better Children's Internet, existing barriers to digital inclusion need to be addressed.

33 United Trade Federal Trade Commission (2023).
34 eSafety Commissioner (2023a).
35 Statista (2023).
36 Thomas et al. (2023).
37 Queensland Audit Office (2021).
38 Organisation for Economic Co-operation and Development (2018).

Internet access in Australian households

In households where children do have adequate access to the Internet, they are likely to be using multiple technologies, services, and devices. In this section, we draw on available data to describe, in general terms, Australian children's access to some of these media-rich products and services. Pangrazio and Mavoa conducted an online survey of 504 Australian households with children aged 0–8 years, with results that indicate Australian households with young children are indeed highly connected (see Table 2).[39]

Device Type	Number of devices across households	% of households with at least one	Average per household
Products	1207	98.6%	2.4
Laptops	675	88.1%	1.3
Tablet devices	648	84.5%	1.3
Smart TVs	631	75.6%	1.3
Gaming consoles	528	66.9%	1.1
Casting devices (e.g., Apple TV)	342	50.6%	0.68
Smartwatches	280	45.8%	0.55
PCs	271	38.9%	0.54
Fitness Trackers	196	27.8%	0.38
Set top boxes (e.g., Foxtel, Fetch)	161	26.4%	0.32
Total	**4939**		

Table 2: *Number of electronic devices by type in 504 households surveyed (replicated from Pangrazio & Mavoa (2023)).*

39 Pangrazio & Mavoa (2023, p. 8).

Similarly, according to *Telsyte's Australian Digital Consumer Study 2022*,[40] which surveyed 1,114 respondents (including 412 families) about their consumption of digital technologies:

- There is an average of 21.9 Internet-connected devices in every household.
- Almost two-thirds of children aged 5 and younger have access to digital devices, with 86% of children having access at ages 6-12.
- 60% of households with children under the age of 18 have a games console but tablets are the most popular device for children under 12 to play games.
- 37% of households with children under the age of 18 had a smart speaker, with playing music and audio, setting timers and alarms, and getting everyday information being the most popular activities for children with the device.
- 77% of households with Smart TVs have one directly connected to the Internet.
- While 83% of households have at least one entertainment subscription each month, about half of the online video content consumed by children is accessed through free services, such as ABC iView

40 Telsyte (2022).

Summary and Future Considerations

In this section we conceptualised the Children's Internet by describing the various ways that children access digital products and services for internet experiences. We demonstrated that the Children's Internet is made up of an array of digital products and services that are both intended and not intended for children, and that not all children have the same access to internet experiences. Hence, in calling for a better Children's Internet we put forward the following considerations:

- There is a complexity in drawing a firm boundary around *what is* and *is not* the Children's Internet because in practice the Children's Internet is a dynamic concept, much like how 'the Internet' in general is conceptualised.
- We need more investment, both financially and culturally, into free and high quality children's internet experiences. These experiences should be guided by quality standards that are appraised by civil society. An immediate area of attention to support these internet experiences for children is the call for more ethically responsible age-gating—that is, one that balances safety with privacy concerns—to help guide children and families to access engaging and age-appropriate content.
- Children's access to internet experiences can be exclusionary. This exclusion happens in terms of a lack of access to internet connectivity and devices, and also through the complex, yet normalised, purchasing practices that families must navigate, such as subscription services and in-app purchases. Industry and governments need to make efforts to provide affordable internet connectivity and allow families to make informed consumer choices about what products and services are best for them, including mix-and-matching technology choices.
- We need a more comprehensive and nuanced understanding of children's use of internet enabled products and services at home. Conducting research into this domain will paint a clearer picture for decision-makers to make policy choices that help increase access and use of digital technologies among children facing digital exclusion.

2

Imagining the Children's Internet

To move towards a better Children's Internet we must acknowledge that as a society, we tend to imagine that children should have particular kinds of internet experiences. These 'imaginaries' are made up of distinct hopes and fears about children and technologies. And these imaginaries often underpin and influence public discussions, media representations, and policies about children's internet experiences. This section highlights that:

- notions of 'childhood' are not universal, but they are collectively imagined
- children have their own particular imaginaries about the Internet which may be different to how adults or wider society imagines their internet experiences
- while prominent imaginaries, such as the 'walled garden', centre on protecting children from both real and imagined risks online, they can be implemented at the expense of children having diverse and agentic internet experiences
- understanding the array of current imaginaries—by examining policy discourse, popular media, and industry standards—can help us address our underlying concerns and hopes about children's internet experiences, which, in turn, helps us reimagine a better Children's Internet.

Akin to how we think about the broader Internet, the Children's Internet is an imaginary construct in the sense that it does not exist as one discrete technology, policy, or practice. Rather, the Children's Internet is made up of a diverse range of products and experiences, multiple layers of policy, and innumerous individual and family practices. As such, comprehending the sheer complexity of the Children's Internet requires us to use our imagination to bring all these moving parts together when talking about our concerns and hopes about children's internet experiences.

The Children's Internet exists through all the different digital products and services that children access. And it also exists within the broader narratives that we, as a society, have about children and technology. When children, parents, educators, companies, media, and policymakers alike, engage in discourses about children's internet experiences, what surfaces is our normative expectations about how we think children 'ought' to experience being online. These normative expectations are called *imaginaries*.[41] We each have our own imaginaries about our personal lives and we also all participate in the construction of *public imaginaries*. These public imaginaries are powerful drivers that actively shape the future. This is because the way we talk about issues, for example, through our shared expectations, informs the way we address them. Public imaginaries can be examined through public discussions, media representations, policy documents, and advertising, to name a few sources. Examining these public imaginaries paints a rich picture about our collective imagination, normative expectations, and desired future.

In this section we draw attention to some of the ways the Children's Internet has and continues to be imagined through public, media, and policy discourses. We do so to outline the implications of these imaginaries and to specifically highlight the elements that need to be reimagined to generate a better Children's Internet.

The historical imaginary of childhood

To begin, 'childhood' itself is a public imaginary. This is not to say childhood is not real, but that what is thought of as childhood today involves a long history of diverse stakeholders constructing expectations about what it means. While the UN *Convention on the Rights of the Child* (UNCRC) defines "a child" as "every human being below the age of eighteen years" unless local laws state otherwise (Article 1),[42] there is no universal or 'natural' definition of childhood across historical and cultural contexts. For example, historians have argued that in Western contexts prior to the 17th-century, there was no conceptualisation of childhood as a distinct phase of life separate to adulthood.[43] Children were viewed in society as smaller adults and were required to behave as such. It was only in the 19th-century, during the Romanticism movement in Europe, that children began to be seen as separate from adults in the Western world. This new imaginary of childhood coincided with the Industrial Revolution which saw a distinct change in labour relations regarding children. And it is only from this time that children began to be perceived as innately innocent and needing protection—a perspective that still exists today. However, this new imaginary of childhood produced a gap within capitalist economies, as the 'child worker' shifted into the 'child audience', who was in need of education and entertainment.[44] This gave rise to the distinct categories of Children's Literature and Children's Television in, respectively, the 20th- and 21st-century. Both of these forms of children's media are still prevalent today and the Children's Internet, as a contemporary imaginary, weaves into this long history regarding the construction of childhood.

41 Taylor (2003).
42 OHCHR (1989). The UNCRC was ratified on 20 November 1989 and entered into force 2 September 1990.
43 Ariès (1962).
44 Sefton-Green et al. (2022).

Current imaginaries about the Children's Internet

Children's imaginaries of the Internet

Children have their own imaginaries about the Internet. Luca Botturi asked 8-to-10-year-olds in a study in Switzerland to 'draw the Internet' and found that nearly two-thirds of the children conceptualised the Internet by drawing App icons, logos, and screens.[45] This finding illustrates how children's imaginaries about the Internet are deeply enmeshed with commercial layers that facilitate being online; that is, using apps like Netflix, YouTube Kids, or Minecraft on personal mobile devices.

Other research has found that "children do not make a hard-and-fast contrast between online and offline" play.[46] Research by the Digital Futures Commission, called *Playful by Design*,[47] prioritised children's own accounts about how they experience play in both digital and non-digital environments and found that children seek out and enjoy similar experiences, regardless of the context (see Case Study 10). These accounts by children challenge the longstanding imaginary, constructed by adults, that non-digital play (e.g., 'outside' or 'physical' play) is inherently superior to digital play. However, this research also found that children are critical of the ways that their free play—that is, voluntary and intrinsically motivated play—can be constrained by how the digital environment is designed. This suggests that while efforts should be made to challenge the public imaginary that non-digital play is superior to online play, it is also paramount that progress is made in the space of designing the digital environment to best support children's play online.

Children also have imaginaries about themselves being online. Recent polls have shown that being an online influencer is a popular imagined future amongst many children and young people. For example, a 2019 global poll conducted by the LEGO Group with over 3000 children aged between 8 to 12, found that children were three times more likely to want to be a YouTuber over an astronaut when they grow up.[48] While aspiring to be an 'influencer' may conjure concerns from some adults,[49] it is unsurprising that children seek to mimic the professions they see through their everyday media practices. It's important to champion children's imaginaries about themselves and their internet experiences, as these are overshadowed by the imaginaries that adults have about children.

Walled gardens

A 'walled garden' is the imaginary that separate spaces can be created to keep particular areas of the Internet contained. The term—taken from the historial garden design of high horticultural walls to keep animals out and humans in—describes a closed ecosystem. A well-known example of a walled garden is Children's Television programming like Nickelodeon and ABC Kids. The imaginary of walled gardens is that safe and age-appropriate experiences for young users can be created by restricting children's access to general features and inappropriate content through age-gating mechanisms (keeping children in), and showcasing

45 Botturi (2021).
46 Livingstone & Pothong (2022, p. 491).
47 Livingstone & Pothong (2021).
48 LEGO Group (2019).
49 Rodriguez & Levido (2023).

media and aesthetics that wouldn't appeal to adult audiences (keeping adults out). In terms of the Children's Internet, instances of walled gardens include Netflix's Kids account, YouTube Kids, Messenger Kids, and services with active parental controls, to name a few.

Walled gardens are often imagined as safer environments—and thus innately beneficial for children—due to parents and caregivers having greater control. But greater control within walled gardens can also limit children's access to important information, meaningful connections with peers, and may not equip children with the resources and skills to develop 'online resilience'.[50] Additionally, the notion that there is such a thing as a walled garden is challenging in practice, especially when considering the variety of products and services that children access. For example, as described above in Section 1, children access content that is not intended for them and can overcome age-gating mechanisms. Moveover, walled gardens are ignored by both children and adults alike.[51] Thus, in moving towards a better Children's Internet, we need to consider the function of walled gardens and make design and policy decisions that strike the balance between creating spaces specifically for children, but not at the expense of excluding them from other internet experiences.

Risk imaginaries

The idea of a walled garden feeds into a broader imaginary about the inherent risks of children being online. While protecting children online and keeping them safe from harm is a very real and important practice that individuals, companies, and governments need to uphold, we also need to consider some of the imaginaries that underpin these efforts. For example, technology regulation—a topic we return to in Section 5—is often developed as a response to products and services that have already been pushed to market. And sometimes these reactionary responses to emerging technologies by policy and decision-makers are enacted through 'moral panics'. A moral panic is an overreaction to a perceived societal problem, whereby the media is known as a driving factor that reproduces and compounds concerns.[52] Youth culture and young people's technology practices have historically been caught up in moral panics.[53] A recent example of moral panic is seen through decision-maker and media discourses at a recent hearing where TikTok CEO Shou Chew testified before the US congress. In this hearing, TikTok was framed by a member of congress as encouraging children to "put their lives in danger" and that "within minutes of creating an account" the "algorithm can promote suicide, self-harm, and eating disorders to children."[54] These discourses engender an imaginary that TikTok is something that is undeniably risky for children and young people and thus, they need to be protected from it. But this imaginary not only undermines the benign and everyday experiences that young people will likely have on the platform, it also erases the sociability, creativity, and play that children experience on TikTok.[55]

Recent research into stakeholder discourse about children online found that imaginaries that focus on fear, such as framing children's online experiences as being 'Internet addiction', are 'profitable' for digital media platforms.[56] Meaning, in

50 Vissenberg et al., (2022).
51 While researching television watching practices in the home, Meyrowitz (2009) found that children enjoyed watching television shows that were not designed for them, as they learnt how adults perceived them through it. Meyrowitz described this as children learning 'adult secrets'.
52 Critcher (2006).
53 Hall (1978); Cohen (1980).

moving towards a better Children's Internet we need to consider the motives and imaginaries behind the discourses that frame particular products and services as risky to children. Again, while there are some serious risks to children being online and concerted efforts to address these issues are needed, it is an imaginary to assume that all internet experiences are risky for children.

National identity and media production

Imaginaries about childhood in media contexts can be examined through national policies about media production. The Australian Government recently released the *National Cultural Policy*, a five-year plan to support the arts,[57] which constructs requirements and expectations about what it means for Australians to be represented through and participate with the media they consume. In the context of children and the imaginary of national identity, the Australian Children's Television Foundation is quoted in the plan explaining that "when Australian children see their lives reflected on screen, they experience recognition and affirmation, with characters and stories that help them imagine all the possibilities for someone like them".[58] The policy includes calls for First Nations peoples and children to have greater representation of their culture through media.

"Children are naturally drawn to American storytelling because, in a child's mind, it is inspiring and captivating. America has heavily invested in children's content, and this success is a testament to the high quality and artistry prevalent in its narratives. Consequently, Australian children are increasingly influenced by American culture more than by Australian stories"

—Michael Carrington, Executive Producer for Carrington Media

While the *National Cultural Policy* underscores the value of having an imaginary regarding Australia's national identity, it also points to how the shift from broadcast to streaming services in the media landscape could jeopardise what 'quality' children's content in the future could look like. Specifically, the policy names national broadcasters the ABC and Special Broadcasting Service (SBS) as playing "an important role in shaping Australia's national identity, fostering social inclusion and encouraging myriad forms of cultural expression."[59] Yet, the ABC has no codified obligations to children and no mandated levels of Australian content, and it has been known to de-prioritise domestic content for children.[60] These issues are also compounded by international streaming services, such as Disney+ and Amazon Prime, who pose a threat to national representation unless they invest in local productions that prioritise Australian children's content.[61] This practice of local investment is not unfounded as, for example, Netflix announced in 2020, it had spent AU$110 million since 2016 investing in children's programming in Australia.[62] In seeking a better Children's Internet, then, there is a need for more targeted investment from publicly funded government and large media production and technology companies at the local, national, and international levels.

Pop culture imaginaries

Pop culture plays a large role in shaping particular imaginaries about how digital technologies are being integrated into children's lives now and into the future. Film and TV shows anchor stories that frame the future of children's digital lives in

54 Klein (2023).
55 Livingstone & Pothong (2021); https://tiktokcultures.com/tiktok-and-children/
56 MacKinnon & Shade (2020).
57 Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2023).
58 Ibid., p. 88.
59 Ibid., p. 87.
60 Australian Broadcasting Corporation (2022).
61 Samios (2023).

particular ways. A common trope within these pop culture imaginaries is humans overcoming dystopian technological futures created by nefarious actors. We see this particular story in popular children's films like *Ron's Gone Wrong* (2021), which explores issues like personalised algorithms and tech-companies spying on users for profits. *The Mitchells vs. The Machines* (2021), a film that foregrounds a dystopian future where a family needs to band together to fight a tech-giant, is another example. While these two examples sit squarely in fictional media, the popular docudrama *The Social Dilemma* (2020) is another instance where pop culture imaginaries construct children's internet experiences as bad, manipulative, and harmful. For example, there is a dramatised scene in the docudrama where three figures are at the 'controls' of a social media platform's algorithm and 'dials' are turned to 'increase' a child's exposure to harmful content. These types of pop culture imaginaries and representations about the Children's Internet are problematic as they narrow the scope for us to imagine alternative, and better, digital futures for children. In moving towards a better Children's Internet we need to see more optimistic, positive, and inspiring pop culture representations of children's internet experiences.

Tech entrepreneurial imaginaries

"We don't want to be the first to market. We want to be doing it right and making it best to market; showcasing that we are being careful and safe."

—Joey Egger, Managing Director at DEPT®/FAMILY (APAC)

The Children's Internet cannot be disentangled from the tech entrepreneurial imaginaries that drive the development of children's online products and services. These particular entrepreneurial imaginaries are embedded within a Silicon Valley tech culture known as the 'Californian Ideology'.[63] The Californian Ideology speaks to the values that drive innovation in Silicon Valley, which is the area in the US where many large tech companies are based—for example Meta, Alphabet (Google), Amazon, Microsoft, and Apple (known as MAAMA[64]). The values that underpin the Californian Ideology, and by extension the tech entrepreneurial imaginary, is 'move fast and break things'. This is the idea that innovation emerges by pushing products and services to market quickly and disrupting existing processes and technologies to get ahead of the curve. The tech entrepreneurial imaginary is problematic for a number of reasons, including creating a culture of 'techno-solutionism' whereby technology is sought out as the solution to problems, before questions about what is best for that context are asked.[65] And in the context of the Children's Internet, this particular imaginary has led to the rapid development of children's versions of popular social media platforms (see Case Study 2 for details about 'Instagram for Kids'). And in striving for a better Children's Internet, we need to consider what gets compromised when 'speed and disruption' is driving the development of children's internet experiences.

The tech entrepreneurial imaginary permeates into children's learning through industries such as EdTech. EdTech is an industry that is expected to be worth US$404 billion in 2025.[66] The industry focuses on digital products and services that are marketed to schools, families, and children as having educational value. This is true through some products and services such as reading apps like Reading Eggs, games like Minecraft for Education, and toys like *Bee-Bots* and *MakeyMakey*

62 Lallo (2020).
63 Barbrook & Cameron (1996).
64 This acronym has changed over time as company names have changed.
65 Morozov (2014).

for STEM education. This is less true for other products and services such as 'Montessori Preschool,' described in Case Study 8. As an industry, EdTech is subject to, and can emulate, tech entrepreneurial imaginaries through its marketing of learning materials, processes, and outcomes. A better Children's Internet is cognisant of this and tries to mitigate this imaginary, through stringent processes that verify the claims of products and services labelled as 'educational' in places such as major app-stores.

Hype imaginaries

The 'hype' of a technology is a common imaginary used to drive the adoption of, often emerging, children's internet experiences. Imaginaries centred on the hype of a technology are often presented with little or no emphasis on the tangible existing reality of the technology. Hype imaginaries aim to generate excitement and expectations about the 'future potential' of a technology and this hype is used to not only drive financial investment into the technology's development but gain public support. This public support gives the company 'social licence' to push the boundaries of what is acceptable in the development of this technology, in the name of innovation. An example of a hype imaginary is seen with Facebook Inc. rebrand to Meta Platforms, Inc. in 2021,[67] and the announcement that they would spend US$10 billion to develop the 'Metaverse'.[68] The Metaverse was and, at the time of writing still remains, a somewhat speculative internet experience (see Case Study 3), which has struggled to find its everyday consumer market. There was extensive hype about Meta's metaverse when these plans were first announced, however, less than two years later, the meterverse has lost its momentum and Meta's investment has been reported as a loss.[69]

AI is another broad technology category that is fueled by hype imaginaries. For instance, the release of new generative AI (specifically, GPT-4 which use large language models) by OpenAI in late 2022 ignited speculation that the technology was sentient[70] and led to an open letter being signed by some AI experts calling for a moratorium on further developments.[71] This type of media reporting about AI has fueled hype imaginaries regarding its perceived potential and so it is vital that we reposition "AI not as magical, not as a saviour, and not as a destroyer, but rather as a new technology that needs to be critically and ethically understood."[72] While it is important to imagine the future and speculate the potential implications of emerging technologies, it is also paramount to think critically about how hype imaginaries do more to serve the companies and stakeholders of these technologies than everyday people. A better Children's Internet is wary of hype imaginaries and puts more energy into focusing on the realities of children's everyday internet experiences.

66 Yelenevych (2022).
67 Meta (2021).
68 Kastrenakes & Heath (2021).
69 Kelly (2023).
70 Roose (2023).
71 https://futureoflife.org/open-letter/pause-giant-ai-experiments/
72 Leaver & Srdarov (2023, para 12).

Case Study 3: The Metaverse - hype or reality?

There is no one definition of the metaverse. From one perspective, it includes efforts to popularise virtual reality (VR), such as Meta's focus on VR headsets and virtual experiences for entertainment, learning and work. Some industry experts, however, have suggested that augmented reality (AR) is more likely to be successfully popularised than VR and that this will become the basis for the metaverse.[73] Others suggest that Web3 platforms that enable simulations of the real world but that provide new ways to undertake all aspects of life, including new forms of exchange and value, such as cryptocurrencies and non-fungible tokens (NFTs) based on the blockchain, will be integrated into the metaverse.

Roblox Corporation made an announcement in 2021 that the children's game Roblox was a metaverse.[74] And Roblox's attempt at creating the beginnings of a widely used metaverse, has been argued as being more successful than Meta.[75] Other commentators have also argued that the Minecraft platform is an example of a metaverse. Meanwhile, in April 2022, Sony and KIRKBI (the owner of The Lego Group), invested US$2 billion in Epic Games to expand the company's metaverse strategy, built on its Fortnite game platform.[76]

Notably, the term 'metaverse' was coined in the 1992 science fiction novel, *Snow Crash* by Neil Stephenson. In the book, the term 'metaverse' was the idea of a persistent virtual realm navigated by billions and controlled by corporations—and this idea was critiqued rather than celebrated.

Children's Rights imaginaries

Lastly, we want to draw attention to the imaginary of Children's Rights—specifically in context of the digital environment. In 2021, *General Comment No. 25 on the rights of the child in the digital environment* was published by the UN.[77] This important document adapts the principles within the 1989 UNCRC to children's internet experiences. We outline General Comment No. 25 in more detail in Section 5, but here we want to draw attention to how the idea of children having rights in the digital environment is its own imaginary.

Again, this isn't to say that a child does not have rights online, rather that the idea of children's rights is something that stems from societal and cultural norms, and are imbued with values and expectations. For instance, General Comment No. 25 advocates that states and corporate actors are required to uphold children's rights to participate as civil citizens online, to be granted privacy and safety

73 Bajarin (2022).
74 Kovach (2021).
75 Perez (2023).
76 Epic Games (2022).
77 OHCHR (2021).

while engaging with digital spaces, and afforded safeguards to play freely on the internet, to name a few. These are powerful public imaginaries that ought to be championed at every level, by every stakeholder, when working towards a better Children's Internet. Moreover, from a Children's Rights approach, children's voices, perspectives, and desires should be consulted when developing the digital products and services they'll encounter through their internet experiences.

Summary and Future Considerations

In this section, we outlined some of the imaginaries present within public, media and policy discourses that underpin and inform how we, as a wider society, imagine and construct the Children's Internet. Across each of the above outlined public imaginaries, a pattern emerges regarding how the Children's Internet is imagined through polarised perspectives—that is, oscillating between too much fear about the risks and harms, and too much hype about the opportunities and the potential of technologies. We argue that these imaginaries need more nuance to reflect children's actual experiences of the internet, such as that achieved through a Children's Rights approach. In calling for a better Children's Internet we put forward the following considerations:

- We need to move away from a deficit-based perspective when imagining children's internet experiences and strive to reimagine a future wherein public, media, and policy discourses about children's digital products and services champion their agency and positive futures. Shifting public imaginaries about the Children's Internet focuses less on protecting children *from* the digital environment and focuses more on protecting them *within* the digital environment.
- The entrepreneurial motivation to rapidly innovate children's products and services and disrupt markets, rather than meet real needs and present realities, is not compatible with a better Children's Internet. Children's digital products and services need to be developed through consultation, and where appropriate, co-designed with children's and families. This takes time and care.
- To counteract inadequate imaginaries, such as risk and hype, and help redirect the public towards more generative ones like children's rights, we support the development of more accessible consumer information for families and children to allow them to make informed choices and have productive understandings about emerging technologies.

3

The Children's Internet as Commercialised Entertainment

To move towards a better Children's Internet we need to examine how children's entertainment and social connections are shaped by technology and media industries. In particular, we need to better understand (and interrogate) the commercialisation of childhood within media and technology, and consider how such practices create internet experiences for children. This section highlights that:

- children experience the Internet through entertainment and commercially based products, services, and content
- technology companies now rival long established media companies in the entertainment market
- the Children's Internet is made up of complex and new business models that have to be navigated by families
- individuals make social media content that is highly popular with children
- children consume entertainment across a blend of legacy and new media products and services
- there are fewer guardrails across digital media platforms for ensuring children experience quality content, than existed for legacy media.

Children experience and perceive the Internet through entertainment-based products, services, and content. These experiences are mainly accessed through a layer of commercial applications.[78] The Children's Internet consists of multiple commercial layers and options that families must choose from to spend their entertainment budgets and time. The media and entertainment environment is now more complex than ever, with the past decade seeing the rise of subscription

78 Botturi (2021).

services; apps available on touch screen devices; tech companies' bundling of services aligned to their own 'ecosystems'; a variety of new ways to purchase and play games; and an ever-changing range of hardware for accessing and using entertainment (e.g., smart TVs, hand-held devices, gaming consoles, laptop and desktop computers, VR headsets, and voice assistants). The rise of 'social media entertainment'[79] has also allowed online celebrities to use platforms like YouTube, Twitch, and TikTok to build new kinds of audiences.

In this section we describe how the Children's Internet is constructed across legacy and new media practices and business models. We begin by mapping out the ways that child audiences are constructed and segmented through various media production and technology companies. We then explain the presence of transmedia 'supersystems' within the Children's Internet to highlight how the creation of children's entertainment spans from Hollywood productions to bedroom studios via digital platforms. We end this section by focusing on the video games industry and challenges when in-game currencies become enmeshed with entertainment.

Post-broadcast entertainment and children's audiences

"I don't think children and families, indeed all of us, will ever stop thinking about television versus the Internet. Because when we're watching television, we're effectively on the Internet."

—Jenny Buckland, CEO of the Australian Children's Television Foundation

The post-broadcast era has seen the creation of a range of new children's audiences, sometimes in very purposeful ways through the provision of products supported by legacy structures, for instance, in the case of streaming services such as Disney+, and sometimes more accidentally, as is often the case in the rise of new forms of social media entertainment. To understand how the Children's Internet is being created it is useful to consider who produces these audiences and why.

Film, television and video content

One entry point into thinking about children's entertainment audiences is to examine the different business models that structure the provision of film, television, and video content. An Australian child's access to films, television programs, and video content is not just a matter of free choice or preference, but is dependent on the decisions their family makes, and what they can afford. Table 3 below, breaks down the different business models that structure how film, television, and video content is made available, and provides some indicative examples of children's content.

Many Australian children's access to film, television, and video content depends on how many video subscription services their family pays for. In Australia, the 'Trends in Subscription Video on Demand' dashboard suggests that as of June 2021,[80] Netflix was the most popular service in Australia with 13.3 million subscribers,

79 Cunningham & Craig (2019).

80 Department of Infrastructure, Transport, Regional Development, Communications and the Arts (2022); this is the last available data on the dashboard.

followed by Stan (4.9 million), Disney+ (4.2 million), Amazon Prime Video (3.5 million), and Apple TV+ (1.1 million). Families may also choose to rent content on services such as iTunes or the Google Play Store, or they may subscribe to a PayTV service such as Foxtel (which currently has about 1.4 million residential subscribers across all demographics[81]). Families may continue to watch 'free to air' broadcast television (with associated advertising) and they might have broadcast video apps (so-called 'catch up' apps) on their phones, tablets, or Smart TVs. Finally, research suggests that many children are likely to turn to YouTube as their main source of video entertainment.[82]

"BVOD or AVOD strikes me as a really important intersection that we don't talk about very much. We've moved from talking about SVOD into streaming services, because we can see that they're becoming interoperable as a business model more and more, and it's where children are more likely to spend energy rather than legacy broadcast"

—Matt Deaner, CEO of Screen Producers Australia

Business model	Examples	Indicative children's content
SVod: Subscription video on demand	Netflix, Disney+, Amazon Prime, Stan, Binge	Frozen, Marvel and Star Wars franchises (Disney+); Netflix Kids content
BVod: Broadcast video on demand	ABC iView, 7 Mate	Bluey, Thomas the Tank Engine
TVod: Transaction video on demand	iTunes, Google Play Store, Vimeo	A rental on Prime video, iTunes store, Google Play or Apple TV
AVod: Advertiser video on demand	YouTube	Cocomelon-Nursery Rhymes, Stampy's lovely world, DanTDM
Free to air: Supported by advertising, government funding or both.	Commercial television channels, ABC, SBS	Lego Masters (Channel 9), Little J and Big Cuz (SBS), Crazy Fun Park (ABC)
Pay TV	Foxtel	Cartoon Network (U.S.) Nick Jr (U.S) Nickelodeon (U.S) PBS Kids (U.S) CBeebies (U.K. BBC)

Table 3: *Video on demand business models.*

81 Foxtel Group (2022).
82 Ofcom (2020); Dezuanni (2020).

The availability of high speed Internet has significantly disrupted and added complexity to how families access entertainment, providing them with far greater choice than they had in the pre-digital era. In some circumstances, cost is the only barrier to having access to a vast number of entertainment options. One consequence is the possible further fragmentation of the 'children's audience',[83] and as noted below, this is made even more complex by the ever increasing availability of video games and other digital experiences across a range of digital platforms. This kind of fragmentation means that children's internet experiences are varied and there may be fewer commonly shared media experiences than in the past.

Case Study 4: Get Grubby TV

Get Grubby TV is an Australian children's television program hosted on ABC Kids which invites children to 'get grubby' in the garden and learn more about nature. The show is driven by the mission of swapping children's 'screen time for green time' while recognising that children's digital engagement can enhance their understanding and experiences with nature.

The show is produced by Mememe Productions—the team behind the Emmy Award winning hit dirtgirlworld—and is filmed in the Northern Rivers which is a regional area in Australia. The show frequently engages with the local community including schools for the production of the show. And they also host the 'Get Grubby Program' which supplies families and educators with free digital content to help engage children's learnings about the natural environment. In this way, Get Grubby TV is an exemplary instance of how high quality children's media can be produced locally and received globally.

"Children just want stories: they want to learn and they want to laugh. I think stories for all of us are going to remain important. Storytelling will never go away. We'll use technology to tell our stories in new and interesting ways, but it'll never go away; so I think the future is bright"

—Michael Carrington, Executive Producer for Carrington Media

Perhaps the main way children continue to have some degree of a common experience is through story worlds (or franchises) centred on studio produced feature films. The major film studios continue to play an essential role in the production of film, television, and video, with a focus on high profile content that often receives a theatrical release before moving to streaming and other services. Table 4 outlines the entertainment opportunities provided to children by the studios with some examples of indicative content, including 'high concept' franchises. We highlight this vast entertainment landscape to demonstrate how embedded the Children's Internet already is within children's and families' everyday media experiences.

83 Riles et al. (2018).

Studio	Entertainment and services likely to be accessed and used by children	Indicative children's content
Disney	Disney Animation Studios Disney+ Marvel Studios Pixar Star Wars Franchise National Geographic Cruise lines, resorts, hotels and theme parks	Frozen Encanto Star Wars films and television Marvel films and television
Warner Brothers	Warner Brothers Animation Cartoon Network Cartoon Network Arcade (Games) DC Universe / DC Studios Warner Brothers Studio Tours Wizarding World (Harry Potter) Middle Earth (Lord of the Rings) Warner Brothers Movie World (Australia) Looney Tunes Hanna Barbera	Harry Potter films and television Lord of the Rings films and television The Lego Movie Lego Star Wars Video Game Lego Worlds Video Game
Paramount Pictures	Paramount Animation Paramount+ (television subscription service)	The SpongeBob Movie: Sponge Out of Water (2015) Dora and the Lost City of Gold (2019) Sonic the Hedgehog (2020)
Universal Pictures	Universal Studios Theme Park Universal Kids (Television channel)	Despicable Me (2010) Minions (2015) The Super Mario Bros. Movie (2023)
Sony Pictures / Columbia Pictures	Sony Pictures Television (Kids)	Octonauts Hilda Chico Bon Bon Barbie - You Can be Anything (Video Game) Spiderman: Into the Spiderverse Hotel Transylvania Peter Rabbit Angry Birds

Table 4: *The major studios and children's content.*

MAAMA+ and the Children's Internet

Children's audiences are not only created through the provision of film, television, and video content, but also through video games, music, podcasts, and online experiences. How technology, gaming, and media companies construct children as consumers and audience members is central to the construction of the Children's Internet. It is well documented that the 'big five' play a dominant role in the construction of the Internet: Meta, Alphabet (Google), Amazon, Microsoft, and Apple (MAAMA). As outlined in Table 5, these companies, alongside others, play a dominant role in the provision of digital content and experiences for children. Other companies that are particularly notable in relation to the development of children's audiences include: Nintendo, Lego, Sony, Ubisoft, Epic Games, Roblox, Steam, Spotify, and TikTok.

Company	Entertainment and services likely to be accessed and used by children	Indicative children's content
Apple	App Store - iPad apps Apple Arcade Apple Music	Lego Duplo World Angry Birds Reloaded
Alphabet (Google)	YouTube YouTube Kids Google Play store apps	Unboxing, Let's Plays, Gaming and Lifestyle videos Music
Microsoft	Minecraft: Bedrock and Java editions Minecraft Marketplace Xbox Xbox network (Xbox account) Xbox game studios Microsoft studios	Minecraft: on tablet, computer, or console systems Mods and user-generated content Star Wars: The Skywalker Saga (Video Game)
Meta	Facebook Messenger Kids Meta Quest (Meta account) - VR headset and content Proposed Instagram Kids (no longer in development)	Messaging and video calling with filters and stickers Rec Room, CookOut, Job Simulator
Amazon	Amazon Kids+: books, television and film content, games, Alexa skills (available in the US and Canada) Kids Echo Dot	Content from Disney, Nickelodeon, PBS Kids, Marvel
Roblox	Roblox games: user-generated and commercially produced and distributed within the Roblox platform	Adopt Me! Pet Simulator X

Nintendo	Nintendo Switch Nintendo Switch Online	The Legend of Zelda - Tears of the Kingdom Animal Crossing Mario Kart
Sony	Playstation Playstation Network	FIFA 22 Sonic
Epic Games	Epic Cabined Account (for under 13s) Lego Group 'kids metaverse' partnership	Fortnite Rocket League Fall Guys
Ubisoft	Ubisoft Young Player Account for under 13s.	Just Dance Growtopia Cloudy with a Chance of Meatballs The Smurfs
Spotify	Spotify Kids, available with a Spotify Premium Family subscription	Kids' podcasts Age appropriate music playlists Music from kids TV shows and movies.
Lego Group/ Kirkbi company	Lego kits Amusement parks Retail Stores Franchised media content	Lego Movie Lego Star Wars Lego Marvel (Sony partnership)
TikTok	TikTok App	Dance videos Educational content Craft content (e.g., Slime TikToks) Child influencers/actors 'Children's Books Being Read' TikToks

Table 5: *Technology, gaming, and media companies and the Children's Internet.*

Entertainment 'supersystems'

Today's children consume content and story experiences across multiple official and unofficial channels. In the pre-internet era of the 1990s, Marsha Kinder described how children were consuming content like *Teenage Mutant Ninja Turtles* across film, television, and gaming systems. She described these as transmedia 'supersystems'; by deliberate design, children could engage fluidly with content across a variety of different media formats (like the various media products associated with the Ninja Turtles such as comic books, films, television etc.),

and in doing so would build and reinforce the cultural value of such media. In the years since, such 'supersystems' have become almost ubiquitous as children increasingly engage with transmedia story 'universes'.[84]

Transmedia 'supersystems' are often formed around high concept content such as studio feature films or highly successful games such as Minecraft, Sonic, and Mario. The animated feature film *Encanto* (2021) was produced by Walt Disney Animation Studios, distributed into cinemas, and on the Disney+ subscription service. In addition, it exists across a range of other platforms and products (official, unofficial, and fan-created), and may be 'consumed' by children in multiple and complex ways, as outlined in Table 6.

The *Encanto* 'supersystem'		
Official content	Walt Disney Animation Studios	Animated feature film initially available in cinemas and then available to stream on Disney+
	DisneyMusicVEVO (Official YouTube Channel)	Official 'Sing Along' video on YouTube[85]
	Walt Disney Animation Studios (Official YouTube Channel)	Encanto Trailer and other official promotional material
	Disney Interactive	Official Encanto Video Game - available on all systems
	Disney Branded Television	Encanto at the Hollywood Bowl (Live to film concert experience) streamed on Disney+
	Disney Store Official Disney Merchandise	Disney Encanto Deluxe Figure Set Encanto clothing Encanto play sets Play dolls, Plush toys, drink bottles
	Official Soundtrack and songs	Spotify streams - 'We don't talk about Bruno' has been streamed over 412 million times (surpassing Frozen's 'Let it Go').

84 Kinder (1991).
85 https://www.youtube.com/watch?v=hrMxx8EV4JU

Licensed	StoryToys Entertainment Limited	'Disney Colouring World' app available on the Apple App store
	Golden books	Golden/Disney Encanto Big Golden Book
	Lego	Lego Disney Princess: The Madrigal House
	Jakks Pacific	Encanto toys and doll houses
Unofficial and user-generated content	User-generated content	TikTok trend: "We don't talk about Bruno… " Encanto Roblox Games and Minecraft Maps Encanto Memes Encanto social media communities
	Social media entertainers	Unofficial material produced by content creators on YouTube and TikTok: reviews, discussions and trends Roblox and Minecraft Encanto Let's Plays on YouTube

Table 6: *The Encanto transmedia supersystem.*

'Supersystem' examples like *Encanto* illustrate how it is increasingly difficult to determine who counts as a producer or provider of children's media content and experiences. For instance, a Roblox Let's Play *Encanto* video is: a video produced and uploaded to YouTube by a social media entertainer, who is playing an unofficial game produced by another player on the Roblox platform, based on the *Encanto* storyline and characters. Such videos often receive hundreds of thousands of views from children. In this example, several entities benefit financially (see Table 7).

Entity	How they benefit
Roblox Encanto Game producer	Their unofficial Roblox game receives 'free' publicity which may lead to status as a popular developer in the Roblox community, or financial income via Roblox 'Developer Exchange'.
Roblox	More users are attracted to the Reblox platform, who then buy 'Robux' or subscriptions.
Let's Player	Receives an income via Google's Adsense revenue system, and/or via sponsorships or endorsements.
YouTube	Receives income by selling advertising opportunities.
Disney	Receives 'free' marketing for the original film and all its associated products and services.

Table 7: *Who benefits from the production of an Encanto Roblox Let's Play video?*

A significant challenge related to transmedia supersystems is that it is no longer possible to assume that a specific 'intellectual property' (IP) or franchised product represents quality. Although Encanto is produced by Disney, which is typically associated with a certain kind of quality and trustworthiness, there is no guarantee that fan productions or user-generated content across digital platforms will maintain the quality associated with the original IP. One organisation that plays a role in identifying the quality of children's products is Common Sense Media. Common Sense Media reviews apply a proprietary 'quality rubric' to movies, books, television programs and games, and use a rating system to indicate the appropriateness of content for children at different age levels. Common Sense Media's Sensical streaming service takes this one step further to provide children with free (advertising supported) video content in which 'child development experts, not algorithms, approve every frame of every video for safety and age appropriateness'. [86] Efforts like this provide a possible template for how quality may be assured for Children's Internet content and experiences in the future.

"The reason why you need large amounts of high quality content is that you want to be covering a wide range of people and experiences in your shows and you want them to be really genuine and from the heart"

—Jenny Buckland, CEO of the Australian Children's Television Foundation

86 https://www.sensical.tv/

Case Study 5: Lessons from Australia's regulation of children's television

The Children's Television Standards (CTS) were introduced in 1979 in response to widespread societal concern about the poor quality of television available to Australian children. Enshrined in the Broadcasting Services Act as part of broader Australian content regulations, the CTS mandated minimum amounts of children's programming each year, including 32 hours of new Australian drama per commercial broadcaster, and also contained advertising restrictions. The CTS were carefully designed to improve the quality as well as the amount of Australian children's television. Each Standard addressed certain requirements such as age-appropriateness and production values, including that productions should be sufficiently well resourced to achieve a high standard of 'script, cast, direction, editing, shooting and sound'.[87]

The CTS worked well pre-digitisation, in conditions of program scarcity and abundant advertising revenue. However, they became less effective after the 2009 introduction of multi-channelling and the audience fragmentation that followed. With their business models under pressure, commercial broadcasters de-funded their children's content obligations, instead taking steps, such as using animation that lacked Australian cultural specificity rather than live action drama, to fill quotas.[88] The quotas' eventual removal in 2021 after decades of lobbying by commercial broadcasters left Australian children's television in a policy limbo at a time of increasing media internationalisation.[89] Few formal protections for quality or cultural value in Australian-produced children's drama currently exist, at a time when children have access to abundant content from all over the world.

87 Australian Communications and Media Authority (2013).
88 Potter & Lotz (2021).
89 Bakan (2023).

Social Media Entertainment and micro-celebrity

One of the most significant changes in children's media and entertainment in the past decade has been the rise of social media entertainment[90] and micro-celebrities as entertainers. Successful micro-celebrities appeal to their audience by being approachable, friendly, authentic, and fun. Their fans want to 'hang out' with them on a regular basis because they like them as people, not just because of their content. They often create personalities for themselves, using a frequent catch phrase and stylistic techniques that are uniquely their own, and they put as much effort into building their audience through 'relational labour' [91] as they do making content. For instance, fans often develop parasocial friendships with Let's Players, and Let's Players actively aim to reduce social distance with their fans, often by disclosing personal information about themselves.[92]

For children under 13, YouTube has emerged as the main platform on which they follow micro-celebrities, with numerous recent surveys of children's use of digital media indicating that YouTube is their number one platform.[93] Some social media entertainment genres that are popular on YouTube include Let's Play videos in which gamers narrate their own game play (see Case Study 6), unboxing videos,[94] and lifestyle videos. Companies like pocket.watch[95] have emerged as studios that aim to coalesce talent and create new revenue opportunities for social media entertainers. Pocket.watch claims to deliver 7.4 billion children's views every month and does this in a way that is COPPA and GDPR compliant (see Section 5). They claim: "We're on a mission to transform the top-performing family YouTube channels into multi-category global franchises, and we've got it all—The Stars, The Shows, and The Goods—to bring kids more of what they love everywhere that kids play". The child stars they represent include 'Ryan's World' (35.6 million subscribers), 'Toys and Colors' (43.4 million subscribers), and 'Love, Diana' (9.1 million subscribers).[96]

90 Cunningham and Craig (2019) define social media entertainment as "an emerging proto-industry fueled by professionalising, previously amateur content creators using new entertainment and communicative formats, including vlogging, gameplay, and do-it-yourself (DIY), to develop potentially sustainable businesses based on significant followings that can extend across multiple platforms" (p. 5).
91 Baym (2018).
92 Dezuanni (2020); Marwick (2013).
93 Notley et al. (2023).
94 Walczer (2021).
95 https://pocket.watch/
96 Subscriber numbers as of September 2023.

Case Study 6: Minecraft Let's Play videos

Gaming is one of the most viewed categories of entertainment on YouTube and amongst gaming content, Let's Play videos are highly popular with children, attracting billions of views per year.[97] A 'Let's Play' video is a recorded game play session in which a gamer records their 'live' gameplay and a voice over commentary to entertain and inform their audience.

Stampylonghead, or Stampy as he is widely known, is a 'family friendly' Let's Player who mostly makes Minecraft content. He was one of the original Let's Players and at one point he was one of the top five most popular YouTubers. During 2014 and 2015 he became a curiosity in the British Press, with headlines such as "Forget Justin Bieber, the latest YouTube star is a university graduate from Portsmouth who plays Minecraft full- time".[98] Reports from the time suggested he was earning up to 200,000 pounds per month. Between 2012 and 2023 Stampy uploaded over 3900 videos (and he self-reported working at least 11 hours per day for the first 6 or 7 years). During these years, he often uploaded a 30-minute video each day. His 'Lovely World' series includes over 800 videos to date. According to Social Blade, as of February 2023, Stampy has 10.7 million subscribers; his videos have been viewed over 8 billion times, and are currently being watched about 6 million times per month (about 200k per day).

Video games and the Children's Internet

Video games are available to children across multiple digital platforms. Console gaming systems such as the Nintendo Switch, Microsoft XBox and Sony Playstation compete for attention and a place in family living rooms. Digital games and games-based apps for phones and tablet devices are available via the Google Play store and Apple's App Store (and Apple Arcade). Children also continue to play games on laptop and desktop computers. Versions of expensive high profile games are often released for play on computers and these sit alongside less expensive independently produced games available on the Steam platform. The so-called 'AAA' games publishers, which include large companies such as Electronic Arts and Ubisoft, are known for producing high-profile 'blockbuster' titles that are often based on successful Hollywood film franchises, as indicated in Table 5 above.

Some highly successful games have a presence across most, if not all platforms, which means they become available to children no matter what kind of technology they have access to. For example, Minecraft is produced by Swedish company Mojang, which is owned by Microsoft and versions of the game have been

97 Dezuanni (2020).
98 Woollaston (2014).

produced by XBox Game Studios and Sony Interactive Entertainment. The game is available on: computers using the Apple, Microsoft, and Google software suites (i.e., Windows, macOS, Google Chromebook platforms), and Linux computers; all consoles including Playstation, Switch, and XBox; and mobile devices, such iPhones and other Apple iOs tablets, Android, and Amazon Fire. Another example is the highly successful Roblox that is somewhat unique in the gaming world, as it is an independent gaming platform on which children can access games built specifically for the platform. On Roblox, children can also build their own games using the platform's tools. Like Minecraft, Roblox is available across multiple platforms, including in VR versions for the Meta Quest2 and Meta Quest Pro (owned by Meta). Of note, in late 2022, Roblox announced that it would introduce an in-game age rating system to distinguish between experiences available to players at different ages; with different experiences available to under 13s, players aged 13-17, and experiences for those aged 17 and older (see Section 1 for discussion on age-gating).

In-app purchases, in-game currencies, and 'loot boxes'

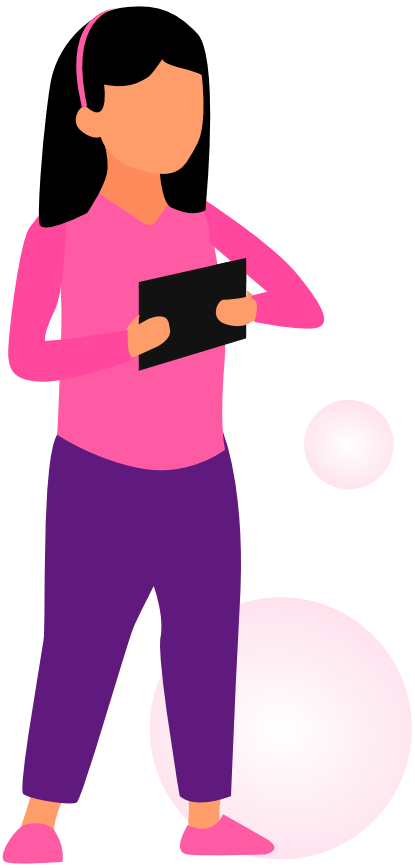
Many games include in-game currencies which may blur the lines between fictional and real-world financial exchanges. In many cases, children's game currencies are mostly benign and add interest and challenge within a game. For instance, 'Bells' are central to the Nintendo game *Animal Crossing* because it is impossible to achieve objectives within the game without selling obtained items for Bells, which are then used to purchase resources for decoration, clothing, and building. However, it is not possible to spend real money within the game to purchase Bells (notably, Bells can be purchased for real money online on sites like eBay, although this is against Nintendo's 'Terms of Service'—see Section 5). Other games such as Roblox more directly blur the lines between in-game and real world currency, as outlined in Case Study 7.

A particular concern related to in-game currencies is the availability of paid 'loot boxes' in some games, which are digital artefacts that are acquired (often purchased with real money) and offer randomised rewards, where more valuable rewards are rare. Sometimes called 'pay to win micro-transactions', loot boxes have been associated with gambling. Research has shown that in some cases children have spent substantial sums of real money to purchase loot boxes.[99] Loot boxes have been banned or age-restricted in a number of countries. In moving towards a better Children's Internet, more consumer information needs to be readily available to families so that they can make informed choices with their children about in-app purchases.

99 Ash et al. (2022)..

Case Study 7: Robux in Roblox

Roblox is a highly popular game with children with over 67 million daily active users.[100] One of the main sources of revenue for Roblox is its in-game currency, called 'robux'. Users can either spend real money to purchase robux or earn robux in-game (or in other online forums) by selling games or digital items, such as clothing, to other players. Players can use robux to upgrade their avatars or buy special abilities. In Australia, as of September 2023, prices range from AU$7.99 for 400 robux up to AU$319.99 for 22,500 robux. Roblox developers who earn a lot of robux can convert their in-game earnings back to real money on a platform like DevX, where 100,000 robux = US$350.[101] Critics argue, however, that this arrangement is exploitative because it costs approximately US$1000 to purchase 100,000 robux; therefore, the robux 'exchange rate' is significantly in the company's favour.[102]



100 Ruby (2023).
101 As of May 2023.
102 Rousseau (2021).

Summary and Future Considerations

In this section we provided insights into the myriad of ways children experience the Internet through commercial entertainment products, services and content. We highlighted how the Children's Internet is built through overlapping commercial layers, constructed through various children's audiences, and accessed via complex business models. In mapping this entertainment landscape, we drew attention to the challenges that both families and children face in terms of the financial and content-based decisions they must now make to be entertained online. In calling for a better Children's Internet we put forward the following considerations:

- The flow of children's entertainment across legacy and new media has important implications for the Children's Internet. It raises questions about how to ensure children have positive and quality experiences when entertainment becomes distributed across various forms of media production—from Hollywood films to user-generated content—where accountability and standards are harder to administer. Industry and government endorsed standards about what counts as high quality entertainment should be developed and these standards need to be adopted at all levels of children's media production, including by social media entertainers.
- Industry and government stakeholders need to support funding the production of high quality children's entertainment through sustainable means. Public funding bodies such as governments, should give financial priority to the production of freely available and locally produced children's content, and new policies should be introduced to incentivise strategic investment from global media production and technology companies to help fund the production of accessible, high quality children's entertainment products, services, and content.
- Children should have access to free online content and free content must continue to be part of a family's choice for their entertainment—whether that free content is something they want to, or need to, access. This free entertainment content must be of the same high quality that is made available through paid products and services.

4

The Children's Internet as Commercialised Learning and Education

To move towards a better Children's Internet we need to be aware of the connections between technology, experiences of (and approaches to) learning, and education more broadly. Whilst digital technologies may introduce new possibilities for learning and education, they also present new problems in terms of the ways we think about learning within the Children's Internet. Specifically, the increasing commercialisation of learning through the internet calls for more attention to ensure that children can access both entertaining and genuinely educational experiences online. This section highlights that:

- the 'EdTech' (i.e., educational technologies) sector is comprised of an ever-expanding array of digital products, services and content for children
- regulatory decisions, particularly those made by schools and state-based education departments, often position children's learning within certain brand-specific EdTech ecosystems
- there is value in schools and education systems being as technology agnostic as possible to allow children and families the choice of learning devices, programs, and ecosystems best for them
- better standards are needed for products and services that are labelled as 'educational' within the major app stores; as well as for schools and education systems.

Technology and digital media are necessary, important, and often exciting aspects of how learning takes place in schools and at home. Consequently, learning and education should be central to how we think about the future of the Children's Internet. In Section 2, we point to the imaginaries that inform how educators and

tech entrepreneurs think about the relationship between technology and learning, including that it may make learning more effective and efficient. It is often claimed that new technology will revolutionise schools and learning and that technology is central to the future of education.

In this section we outline two key ideas that relate directly to achieving a better Children's Internet regarding learning and education. The first is how the education sector is constructed as a commercial market for technology products and services. The second focuses on the need to identify and promote the quality of digitally-mediated educational technologies and products.

Commercialising learning and education

Schools and formal education are important markets into which EdTech[103] companies aim to sell their hardware and software. This extends beyond formal education, reaching into family homes, where technology and media products are often positioned as an important means to provide children with access to learning and education. The large technology companies have always competed for a presence within formal education, and each year many EdTech start-up companies aim to produce new products for the education market. This includes media companies producing 'edutainment'[104] content for children in the form of video and audio content, digital educational toys, STEM[105] products and gaming apps.

One of the main ways that technology has been sold to consumers is through the promise of improved learning outcomes for children.[106] Technology is often promoted to parents as being necessary for children's learning and development. Parents and carers who do not want their children to be 'left behind' are faced with choices that may have significant impacts on their family budget. Schools often require parents to purchase technological hardware such as tablet computers and associated apps. The mediation of learning through this commercial layer associated with technology may lead to unnecessary or inappropriate purchases on the part of both schools and families.

There is also frequently a mismatch between the claims made by technology developers, and the actual impacts of educational technology on learning and education.[107] There is no guarantee, and often no evidence-base, to support claims made by some EdTech companies, which are frequently promoted through highly sophisticated marketing campaigns. There is always a danger that the commercial imperatives of the EdTech sector will take precedence over the goal of high quality experiences for students.[108] The pace of innovation in the technology sector is a significant challenge for education authorities and parents and carers, because it can be difficult to distinguish between the hype associated with new products and their genuine utility for learning. In the worst examples, new technologies and digital media products may be subject to a form of 'edu-washing',[109] whereby companies over-exaggerate learning outcomes or educational claims.

103 *EdTech* is an industry term used to describe the connection between technology and learning. The term EdTech is used to describe the companies that produce learning-related hardware and software, as well as, often applied to specific products.
104 Edutainment is a term applied to entertainment-based content that claims to promote learning, often with an audience of children or young people.
105 Science, Technology, Engineering and Mathematics.
106 Ito (2009); Nixon (2004).
107 Gouseti (2010).
108 Ito (2009).
109 Edu-washing is used here in a similar manner to the concept of 'green washing' via which companies over-exaggerate the extent to which their products are environmentally friendly.

EdTech

EdTech is a US$125B market worldwide[110] and has a major influence on how children experience the Internet at school and at home. Global corporations including Microsoft, Apple, and Alphabet (Google) aggressively compete for a share of the education market through the provision of hardware and software. Notably, Amazon and Meta (the other two companies rounding out the 'big five' MAAMA technology companies, see Section 3), have less direct presence in the education market. Amazon has a presence through Amazon Web Services whilst Meta has some presence through its VR/metaverse products, such as Oculus VR headsets.

Beyond the major technology companies, a plethora of EdTech companies—from StartUps to more established companies—compete for a presence in the education sector. For convenience, EdTech can be separated into the categories outlined in Table 8. In this document, we focus on the aspects of EdTech that students most directly interact with: hardware and software systems, and education content and experiences. In addition to the categories outlined in Table 8, EdTech may also include student Learning Management Systems (LMS) and broader Student Management Systems which encompass enrolment, attendance, reporting, and security systems.

110 Markets and Markets (2022).

Category	Included	Indicative examples
Hardware	Computers, tablets, interactive screens, VR and AR technologies, gaming systems, robotics systems, educational toys	Surface Pro (Microsoft) iPad (Apple) Chromebook (Google) Bee-Bots (TTS international) Lego Learning System products
Software systems	Apps, productivity software, learning experiences	Office365 products and Minecraft Education Edition (Microsoft) App Store Apps (Apple) Google Play Store Apps, Google Classroom, Google Workspace for Education (Google)
Edutainment content and experiences	Educational television programs, video content (long and short form), interactive content, and games-based learning	Behind the News (ABC) Minecraft Education Edition (Microsoft)
Learning Apps and modules	Software applications for tablet devices and computers, and modules for VR systems	Reading Eggs XR Square (Oculus VR module)
Communication platforms	Platforms that aim to enhance classroom communication and connections to parents and families	Seesaw Class Dojo Storypark

Table 8: *Categories of EdTech (comprising hardware, software, content, and experiences).*

The Apple, Microsoft, and Google EdTech Ecosystems

One way to think about EdTech is through the lens of the 'big three' technology ecosystems that currently dominate the education sector: Apple, Microsoft, and Google. Each of these companies has placed significant focus on the education sector throughout its history. For instance, in 1978 Apple won a contract with the Minnesota Educational Computing Consortium to supply 500 computers to schools, and later donated over 9000 Apple II computers to eligible Californian elementary and secondary schools as part of the company's 'Kids Can't Wait' program.[111] The highly successful release of the Apple Macintosh (in 1984) allowed Apple to push further into the education sector in the 1980s and was accompanied by the 'Apple Classrooms of Tomorrow' research project, which began in the mid-1980s and ran for a decade until 1994.[112] As of 2023, there are at least 10 million iPads in use in schools around the world.[113]

Following a similar model of distribution and engagement, Microsoft products have also had a long-standing presence in school contexts. During the late 1990s, the Windows operating system was the system of choice for PCs in US classrooms (bolstered by a more than US$1 million donation of Windows 95 software and instructional material to teacher training programs by Microsoft at the time).[114] More recently, newly appointed Microsoft CEO Satya Nadella has spoken openly about his commitment to continue to build Microsoft's educational offerings, highlighting the transformative potential of new technological developments, such as generative AI, to improve educational standards.

Meanwhile, in 2006, Google began to introduce its suite of cloud-based productivity tools to classrooms, with an eventual focus on promoting 'G Suite for Education' and Chromebooks around the world. As of 2019, Google claimed that over 80 million educators and students internationally were using G Suite,[115] 40 million students and educators were using Google Classroom as a LMS, and 30 million were using Chromebook computers.

Today, the 'big three' EdTech companies actively market themselves to educators and administrators using a range of sophisticated techniques including traditional high concept advertising, location-based marketing at the local level, and social media. These efforts reinforce the companies' aims to keep customers loyal to their brands or technology ecosystems.

In line with the tech entrepreneurial imaginaries discussed in Section 2, the big three EdTech companies similarly aspire to build brand loyalty by actively marketing themselves as leaders at the forefront of the industry, developing products and services that are seen as making the most of the potential of technology for educational purposes. Microsoft is investing heavily in the creation of software and products that employ AI to streamline and 'transform' capacity for the development of efficient and productive societies, particularly in areas of business, education, and learning. Their recent launch of Microsoft 365 Copilot, and its automatic integration into existing software such as Microsoft Word and

111 Watters (2015).
112 Apple Inc (2008).
113 Tynan-Wood (2023).
114 Microsoft (1997).
115 Vamvakitis (2019).

PowerPoint, has clear and direct implications for education, including the design and implementation of classroom activities to equip students with relevant, 'real world ready' digital skills.

In seeking a better Children's Internet, we need to consider how these innovative and market-driven developments influence the decisions made by educational stakeholders as to which technologies, software, and systems are prioritised in classroom and home learning environments.

Education system and school technology choices

Microsoft, Google, and Apple often have a presence in schools due to direct contracting or preferred supplier status. For instance, in the Australian context, the State Department of Education in Queensland has signed contracts that ensure Microsoft is the main supplier of software to schools, and teachers are not authorised to use the Google learning ecosystem or Google Chromebook devices. Other States are less restrictive; in the Australian Capital Territory (ACT) government schools and the Northern Territory Catholic Education schools, Google has a much larger presence than Microsoft, while in Western Australia, Microsoft is used in significantly more schools than Google. Meanwhile, Apple hardware (particularly iPads) and apps are used in a range of systems and schools across the country, with school leadership often requiring that parents provide their children with iPads as part of the schools' 'Bring Your Own Device' (BYOD) policy.

The consequence of these kinds of arrangements is that significant power rests in the hands of State, district, or school authorities in terms of which technology ecosystems are favoured and supported. In this context, choices about technology provision may conceivably be made based primarily on the personal preference of people in positions of authority, on marketing claims, or due to persuasion from sales representatives. There is potential for student learning to be impacted by these decisions. In addition, choice about preferred or familiar technology is taken away from individual users or families, and families may have a direct conflict with school decisions. For instance, families may be an 'Apple family' but their children may attend a 'Google school'. This may have significant impacts on family budgets, especially where families are at risk of digital exclusion. There is no reason for schools to be aligned so directly to a specific technological ecosystem and it should be possible for schools to be more technology agnostic, providing students and teachers with the ability to make decisions at the personal or classroom level.

"A big challenge: It's the wild west of bureaucracy and regulation…where every school system, every state, every diocese, has different rules and different regulations"

—Adam Weber, EdTech Startup Truwell

School and teacher credentialing

Credentialing plays an important role in how EdTech companies seek to create loyalty and promote their ecosystems in educational settings. Along with the 'big three', a range of other companies offer credentialing programs. For instance, Adobe offers credentialing through its Adobe Creative Educator program,[116] providing official recognition for schools and educators who align themselves to particular technology ecosystems, who gain the knowledge and skills to productively use the technology in the classroom, and who share these abilities with colleagues. Credentialing can be highly attractive to teachers who want formal recognition for their technology knowledge and expertise. Teachers are able to use such credentials as symbols of professional achievement (as in the case of achievement 'badges') or to promote their membership to an 'exclusive' club (as in the case of the Apple Distinguished Educator recognition[117]). Meanwhile, schools are able to use their credentialled status in their own marketing and public relations.

Credentialing is positive for technology companies because the presence of loyal and supportive teachers in schools allows the companies to enjoy grassroots support and product promotion. Considered from a different angle, credentialing promotes the commercialisation of education and it incorporates educators and schools directly into companies' marketing strategies. The process may reinforce schools' alignment to particular ecosystems at the expense of openness and choice, and may restrict students' opportunities to learn across a range of platforms and technologies. There is also the potential for educators to undertake free labour for the technology companies, essentially acting as their representative in their school which, in some instances, they have to pay for the 'privilege' to do.

'Edutainment'

Getting the balance right between entertainment and learning is a difficult challenge for media producers and technology developers. The inclusion of educational content in television programming, videos, games, apps, and toys does not automatically lead to the kinds of learning that have currency in the school classroom.[118]

As a television category, 'edutainment' is used to describe 'after school' shows for children that contain explicitly educational content. Perhaps the most famous and longest running example is Sesame Street (1969-present). US preschool programming has a key requirement to be educational and, in the case of the Public Broadcasting Service (PBS), curriculum-based.[119] In contrast, in Australia broadcasting policies for children's content has historically prioritised the achievement of cultural rather than educational outcomes, in part because of the prevalence of US content that was broadcast prior to the introduction of Australian children's content quotas in 1979 (as discussed in Case Study 5). Regulators considered television an important means of socialising Australian children into their national cultural contexts, by representing and reflecting their daily lives on

116 https://edex.adobe.com/adobe-creative-educator
117 https://www.apple.com/au/education/k12/apple-distinguished-educator/
118 Almqvist (1994).
119 Steemers (2010).

screen, and avoided any formalised educational obligations. One mechanism for the promotion of educational content on television for Australian children has been the ABC charter which includes a requirement to 'broadcast programs of an educational nature'.[120]

Increasingly, edutainment content is available via apps and digital games, as described below. Digital media platforms have made it more difficult for educators, parents and carers to make decisions about learning and education resources. The Apple App Store and Google Play Store, for instance, include thousands of apps and games that claim to enhance learning. Both YouTube and TikTok curate access to videos which the platforms position as being educational and both platforms feature creators who promote themselves as being learning-focused. Currently, there are few parameters for how to judge the quality of these products.

App stores and learning apps

Apps available on the Google Play Store and Apple Store constitute a significant way that technology plays a part in learning and education for children at home and at school. Apps are also a key aspect of children's online experiences. Both Apple and Google promote learning apps as a key category in their advertising to children, parents, and educators. In addition, the Google and Apple stores act as influential 'shop fronts' for accessing (and purchasing) learning experiences. However, recommendations made by the app stores through direct advertising or via search results do not always guarantee quality.

When searching for 'educational apps' on the Apple Store and Google Play Store, popular reading apps like *ABC Reading Eggs*, *Epic: Kids Books and Reading*, and *Khan Academy Kids* pop up. While these apps are popular, with over a million downloads each on the Google Store, there is little quality control over the available content and experiences. More broadly, many apps that purport to be 'educational' make dubious claims and a small number—that are motivated purely by financial gain—seek to 'game the system' for more downloads. This is a significant problem, particularly due to the volume of 'educational' apps available, the lack of quality control, and the ease with which developers can wrap an app in marketing to claim educational status.

120 Australian Broadcasting Corporation (2023).

Case Study 8: Montessori Preschool/Montessori Preschool, Kids 3-7

The app *Montessori Preschool* (produced by a company called Edoki Academy), has no official connection to the Montessori educational movement and makes a range of questionable claims. On its website, Edoki claims that the experts assisting with the creation of their product include the famous 20th century educators Maria Montessori, Jean Piaget, and Seymour Papert, who have all passed away. Jean Piaget is cited as a constant source of inspiration for Edoki Academy, as though he is providing ongoing direct support. Although the company claims to work with Montessori educators, they provide no direct evidence.

Moreover, Edoki Academy inflates their impact by claiming they have been featured in *The New York Times*, *USA Today*, *The Guardian*, and *Wired*. However, searches for stories in these publications indicate that the company's apps were either mentioned very briefly in a list of other apps, or there was no clear discussion of the app in the story linked from the website.

The producers of the app use the Apple Store and Google Play Store features to ensure their app is optimised for discoverability. By calling the app *Montessori Preschool* for the Google Play Store and *Montessori Preschool*, *Kids 3-7* in the Apple Store, parents are drawn in and make judgements about the educational quality of the apps, by drawing a direct connection to the Montessori movement.

Parents are frequently requested to download and purchase apps by schools as required resources for the classroom. They have little choice but to do this if they want their children to participate in classroom learning and there seems to be little sense of the 'opportunity cost' for students if their parents decline to download the apps. In seeking a better Children's Internet, questions should be asked about how schools choose apps for use in the classroom, how apps are reviewed for quality, and if schools' choices are regularly reviewed to determine if better options may have come onto the market.

"Capturing a child's real passion and desire to learn and not squishing that through the education process is a real art of creativity. If you're going to bring technology into the classroom, start with creativity—don't start with Edu Apps"

—Educational Technology Expert employed by a large international tech company

Games-based learning

Video games have had a presence in education since the 1970s and some of the most high profile examples of 'educational software' intended for classroom use have been games-based.[121] More broadly, James Paul Gee has argued that children and young people's gaming experiences provide opportunities for complex learning and literacy development and that educators should pay attention to how successful games engage players.[122] The most high profile current example of the use of a game in education is Minecraft and its educational adaptation, Minecraft: Education Edition (M:EE). As noted in Section 3, Minecraft is one of the most recognisable brands within children's culture in the past ten years. In 2014, Microsoft acquired Mojang, Minecraft's production company. Soon afterwards in 2015, Microsoft also purchased Teacher Gaming LLC, a small company which had successfully produced an educational modification of Minecraft (originally called MinecraftEdu) for use in schools. M:EE has expanded to include numerous educational 'maps' (which can be downloaded for use in the classroom), as well as embedded opportunities to learn coding. Several Australian State education departments have purchased system wide licences to make M:EE available to all students.

Today, many learning apps available on the Apple and Google Apps stores are either structured as games or have a gaming component. A key challenge faced by developers who aim to produce games for the education market is the difficulty of producing high quality 'edutainment' gaming experiences that are simultaneously fun to play and provide high quality educational experiences. The accusation that educational games are often 'chocolate coated broccoli' draws attention to the idea that educational games often set out to trick students into learning.[123]

A challenge for parents and educators is that games-based apps may be presented as being learning oriented in the App stores, but may have little educational value. For instance, some 'educational' apps for children are constructed as 'tap' or 'swipe' games with visually stimulating rewards such as explosions of bright colours accompanied by loud sounds, including cheering and clapping. These games may keep children engaged, but may have limited educational value.[124] Another issue is that games are sometimes offered as a reward in the classroom and are not incorporated into the curriculum in meaningful and productive ways.[125] A better Children's Internet strikes the balance between authentically entertaining and genuinely educational products, services, and content for children.

"With the kids TV shows that we're doing educational experiences for, it's about understanding what the learning goals are, what the story world is, the characters and the brand, and making sure it all gets put together in one big happy, fun, educational package"

—Joey Egger, Managing Director at DEPT®/FAMILY (APAC)

121 Ito (2009).
122 Gee (2007).
123 Klopfer (2023).
124 Dezuanni et al. (2015).
125 Beavis et al. (2017).

Summary and Future Considerations

In this section we described several areas of interest and concern relating to the commercialisation of learning and education within the Children's Internet. We highlighted the expanding influence technology companies have in shaping children's learning experiences, particularly as schools and education systems increasingly align themselves with certain brand-specific EdTech ecosystems. We also reflected on the position of parents and carers within these learning ecosystems, acknowledging the hard decisions and choices they must make, or are strongly encouraged to make, in relation to purchasing educational or 'edutainment' content and products for their children. In calling for a better Children's Internet we put forward the following considerations:

- Clear processes need to be in place to understand who makes decisions about what kind of technologies are available in schools and how they are used both within and outside the classroom. Moreover, families need to understand what informs this decision-making by schools and what risks are associated with using the digital product or service (e.g., unnecessary data collection). In practice, this looks like overarching government and industry guidelines, policies, and local protocols to assist schools in making informed decisions about the quality of specific digital resources, that is, the technologies and products, as well as digital services and content, that shape student experiences.

- Consultation is needed between families, schools, and key decision-makers about if the 'big three' EdTech companies—that is, Apple, Microsoft, and Google—hold too much power in the education market. The concern relates to how schools can best respond to their students' digital inclusion needs when, say, the school is exclusively an 'Apple school' but a family only has Google products at home. We strongly encourage more stakeholder consultation to inquire if the current market share of large EdTech ecosystems promotes or restricts not only digital inclusion but also local innovation, in the education sector.

- Quality standards need to be developed, endorsed, and widely accepted around what is counted as 'educational'. To do this, government, industry, and education experts should work together and decide what are the characteristics of high quality educational content and experiences, including those labelled as 'edutainment'. Having internationally recognised standards can help families make informed decisions about the digital products, services, and content they purchase—for example, on the app store—for their children, for the purpose of learning.

5

Regulating the Children's Internet

To move towards a better Children's Internet we need to address how children's internet experiences are constructed and governed through numerous intersecting conventions, regulations, policies, legal standards and social norms. As technological developments and expanding global markets shift the Children's Internet into new territory, the challenges in regulating this dynamic landscape through fixed policies begin to surface. This section highlights that:

- the Children's Internet engages with a complex and competing regulatory landscape that is constituted through local, national, and international responses and influences
- considerations of children's safety, privacy, and personal data protection are prominent within regulatory and policy approaches
- regulatory policies and practices are often communicated in ways that are opaque, vague, and which ultimately complicate understandings about children's experiences online
- currently, there is an over-reliance on 'parental controls' which places a burden on parents and families to 'self-regulate' children's internet experiences
- successful regulation requires a fair balance between government regulation, technology company policies, and personal responsibility.

Regulation plays a significant role in creating the Children's Internet, as it not only defines and shapes, but reproduces ideals about how children *should* experience digital products, services, and content. The Children's Internet is accessed and experienced through a world of overlapping regulations and policies that are enacted at international and national, government and corporate, as

well as individual, levels. These regulations and policies are the product of the interrelationship between laws, markets, technical features and societal and cultural norms.

For the past 25 years, the Internet and popular online services have primarily operated on US-based ideals (like free speech), regulations, laws, and competition because it was from the US that many of the digital products, services, and content originated.[126] Today, however, digital products, services and content are produced and consumed through competing global markets. For example, a US-based family might create paid content on TikTok—a China-based company—which is then consumed by families and children in Australia. In this example, each of the three countries have their own approaches to the regulation of children's safety, privacy, and data—not to mention, TikTok's own platform policies—from which an intersecting and competing policy landscape emerges.

In this section we provide an overview of some of the overarching international and national regulations and corporate policies that both construct and govern the Children's Internet. By highlighting just some of the regulations and policies applicable to children's internet use, we aim to demonstrate the complexity of the regulatory landscape that underpins the Children's Internet. We do this to point towards the areas that can be addressed to build a better Children's Internet.

United Nations Convention on the Rights of the Child

The UNCRC is a human rights treaty that was ratified in 1989 and entered into force in 1990. It is, to date, the most widely ratified of any international convention, with all but one of the 196 signatory countries having also ratified it (the US being the only signatory not to have also ratified the UNCRC).[127] The UNCRC applies to all children within the jurisdiction of the countries that have ratified it (a child being defined as any person under the age of 18, unless local laws deem it otherwise). It comprises 42 substantive articles of which four have been identified by the UN Committee on the Rights of the Child as general principles intended to guide and inform interpretation of all of its provisions.[128] These four general principles are:

- Article 2; the principle of non-discrimination
- Article 3(1); the best interests of the child to be the primary consideration in all matters concerning children
- Article 6; right to life and maximum possible survival and development
- Article 12; respect for the child's views in all matters concerning the child.

126 Evans (2020).
127 OHCHR (1989). The UNCRC was ratified on 20 November 1989 and entered into force 2 September 1990.
128 OHCHR (2003).

Additionally the UNCRC states that children should be afforded a number of other rights—which are useful when thinking about children's internet experiences—including, but not limited to:

- the right to access and share information (Article 13);
- the right to meet and interact with other children and young people (Article 15);
- the right to privacy, even from their families (Article 16);
- the right to access 'reliable information from the media' (Article 17);
- the right to relax, play and participate in leisure activities (Article 31); and
- the right to protection from 'any activities that could harm their development' (Article 36).

While nothing in the UNCRC prevents countries or other international laws from adopting provisions that are more conducive to children's rights than those contained in the convention,[129] the UNCRC provides a top-level guide to children's rights that stakeholders at every level ought to uphold.

General Comment No. 25

In 2021, the UN Committee on the Rights of the Child published *General Comment No. 25 on the rights of the child in relation to the digital environment*.[130] General Comment No. 25 outlines how States should implement the UNCRC in the context of digital environments. The General Comment explained how the UNCRC's four guiding principles (referred to above) should be interpreted in the context of the digital environment:

- *Non-discrimination:* States should ensure all children 'have equal and effective access to the digital environment in ways that are meaningful for them' and 'should take all measures necessary to overcome digital exclusion';[131]
- *Best Interests of the Child:* recognising that 'the digital environment was not originally designed for children' and 'yet it plays a significant role in children's lives'. Accordingly, States should ensure that 'in all actions regarding the provision, regulation, design, management and use of the digital environment, the best interests of every child is a primary consideration';[132]
- *The right to life, survival, and development:* recognising that the digital environment plays an 'increasingly crucial role in children's development' and may even be vital to a child's life and survival during times of crisis. Thus, 'the use of digital devices should not be harmful'[133] and research on 'the effects of digital technologies on children's development' ought to be taken into account;[134] and

129 OHCHR (1989, Article 41).
130 OHCHR (2021).
131 Ibid., para. 9.
132 Ibid., para. 12.
133 Ibid., para. 14.
134 Ibid., para. 15.

- *Respect for the views of the child:* noting the importance of consulting with children when developing legislation, policies, programmes, services, and training on children's rights in relation to the digital environment' to ensure that their views are given due consideration[135] in a way that 'does not result in undue monitoring or data collection that violates their right to privacy, freedom of thought and opinion'.[136]

Prioritising children's safety, privacy, and data

Current regulations and policies that govern the Children's Internet broadly focus on issues pertaining to children's online safety, privacy, and data collection. While the various digital products and services displayed in Figure 1 (see a day-in-the-life, in Section 1) of a child in a typical 'teched-up' family in Australia showcases the types of experiences children can have online, it doesn't make visible all the data that is generated from such use. Data generated from children's use of digital products and services can be collected, used, and sold by individuals and companies, often covertly, for commercial purposes. Data protection rules regarding children's data are created to discourage and stop these collection and commercialisation practices. This is because data has the potential to be permanent, which raises concerns regarding children's privacy and their agency to consent to what 'digital traces' they choose to leave behind, now and into the future. These concerns about data flow into larger issues pertaining to children's safety as participation online can sometimes be porous and limitless.

"I've always been of the belief that regulation can do certain things, but it can't build excellence; it can just create a framework in which excellence can flourish"

—David Kleeman, Senior Vice President of Global Trends for Dubit

Issues of safety span concerns regarding protecting children from viewing adult content; safeguarding them from 'strangers' and predatory and grooming behaviours; protecting them from harmful themes such as suicide, self harm, and eating disorders; and curbing online bullying and harrassment. However, recent research that consulted young people about online safety programs found that these 'extreme' issues are often driven by adult fears and are not representative of young people's everyday online safety concerns.[137]

In terms of privacy, regulation has generally been concerned with protecting children's personal information: that is, information that relates to an identified or identifiable individual, including information such as name, image, and location. Current research, however, problematises the way that both parents[138] and schools[139] generate identifiable information about their children, whether intentionally or otherwise, and raises important questions about how to balance children's rights to privacy with other rights and interests, now and into the future.

Issues of safety and privacy flow into concerns pertaining to how children's information, or 'data', is produced, collected, and utilised online. Recent research findings from Human Rights Watch (HRW), for example, suggest that greater data protection is warranted: HRW reviewed 164 EdTech products used in schools

136 Ibid., para. 18.
137 Marsden et al. (2022).
138 Leaver (2020).
139 Apps et al. (2023).

worldwide during COVID-19 school closures, and found that 89 percent of these appeared to engage in data practices that put children's data at risk.[140]

> **"It's this perpetual sort of ethical problem, where, *if we didn't* look at the data we would have a problem and *if we do* look at it, we have a problem. We basically have to balance those two things in real time as best we can and be sensitive about it"**
>
> *—Andrew Duval, EdTech Startup Frankenstories*

The constant development of new technologies means that issues about safety, privacy, and data move fast. The speed of innovation often results in regulation by governments and platforms that is reactionary or responsive to issues only once harm has already occurred. In some cases, the pace of technological change means that laws may not apply at all to certain harms. Similarly, in instances where regulation adopts wide definitions or broad principles in an effort to apply to future harms, there is a risk that this will be over-inclusive and hamper technical innovation. It is here that we see the tangible tensions between the tech entrepreneurial imaginary that encourages innovation to 'move fast and break things' (see Section 2), and processes of regulations which, by nature, are slower and considered.

Surveillance capitalism

Almost all of this activity that collects children's data takes place within platforms driven by what Shoshana Zuboff describes as 'surveillance capitalism'.[141] Surveillance capitalism highlights that any and all digital interaction is captured as data and analysed for the purposes of both encouraging users to stay on the platform and experience more viewing time (for subscription based media) or advertising (for free-to-use platforms) or both (e.g., YouTube). In this way, children generate data by merely being online: scrolling, watching, liking, commenting, sharing etc, along with posting or uploading content.

Recommender systems and bespoke algorithms help users navigate the almost endless sea of content and choices available, but also build detailed profiles of users that are of great value to the platforms in question. This can be seen, for example, in emails that Netflix generates about child users that are sent to the owner of the Netflix account, usually a caregiver, outlining the time children have spent viewing Netflix in the past week, their most watched content, and which genres of content they prefer. These emails are just the tip of the data iceberg, showing the level of analysis Netflix's recommendation algorithms undertake in order to ensure users, including child users, spend as much of their time and attention on the platform as possible.

This process of collecting information through surveillance capitalism is one of the ways in which children's data becomes monetised online. While the commercialisation of data is the means by which many digital platforms survive, working towards a better Children's Internet means seeing the collection and monetisation of children's data minimised, if not avoided. However, regulating the collection and monetisation of children's data is challenging when we understand that children access and use digital products, services, and content not

140 Human Rights Watch (2022).
141 Zuboff (2018).

intended for them (as described in Section 1); and that parents and families can also inadvertently generate data about children through their own digital media practices (see Section 6).

The United States and COPPA

In the US, the collection and use of children's information is regulated, at a federal level, through the *Children's Online Privacy Protection Rule ('COPPA'), issued pursuant to the Children's Online Privacy Protection Act 1998.*[142] COPPA sets out regulations pertaining to the collection of 'personal information' from individuals under the age of 13, as well as the use of such information. According to the Federal Trade Commission, COPPA applies to

> operators of commercial websites and online services (including mobile apps and IoTs[143] devices, such as smart toys) directed to children under 13 that collect, use, or disclose personal information from children, or on whose behalf such information is collected or maintained (such as when personal information is collected by an ad network to serve targeted advertising).[144]

COPPA also applies to operators of other websites or online services if they have actual knowledge that they are collecting information from children under 13. COPPA places a number of obligations upon those operators bound by it, including: a requirement to post clear and comprehensive privacy policies online that set out what information is collected from children and how it is used; to obtain 'verifiable parental consent' before collecting children's personal information; and to give parents options to opt-in to certain uses of their child's information and opt-out of others.[145] The overarching aim of COPPA is 'to place parents in control over what information is collected from their young children online'.[146] In 2013, amendments to COPPA were enacted due to the changing nature of technologies since its inception. Some of these amendments expanded the definition of 'personal information' to include geolocation data, pictures, videos and 'persistent identifiers' like cookies and trackers;[147] others stipulated that third-party services that 'plug-into' an existing service also need to comply with COPPA rules.[148]

142 United States Federal Trade Commission (2013).
143 Internet of Things.
144 United States Federal Trade Commission (2020).
145 Ibid.,
146 Ibid.,
147 United States Federal Trade Commission (2013).
148 Ibid.,

Case Study 9: YouTube's COPPA violation

Digital services that fail to comply with COPPA are fined by the FTC. In 2019, Google—the parent company of YouTube—was fined US$136 million for violating COPPA rules, and agreed to pay an additional US$34 million to resolve other claims. As stated above, under COPPA, parental consent needs to be obtained before companies can collect and share personal information about children and YouTube was found to be tracking children's viewing history for the purpose of targeted advertising.[149] Despite it being the biggest fine levied for COPPA violations at the time, one of the FTC commissioners, in a dissenting statement, disagreed with the terms of the settlement, and lamented that the fine was insignificant in the scheme of things and still allowed Google to profit from its lawbreaking.[150]

More recently the FTC has announced settlement of a matter involving Epic Games Inc, the company behind the popular video-game Fortnite, also for COPPA violations.[151] According to the FTC, Epic will pay US$275 million for violating the COPPA rule.[152] It has been observed that this settlement 'signals a more muscular role in policing the online children's game industry for privacy-invasive practices.'[153]

Europe and the GDPR

In Europe, children's data is regulated, in part, through the *General Data Protection Regulation* ('GDPR'),[154] which was adopted in 2016 by the European Union (EU) and came into force across the EU in 2018. The GDPR stipulates rules regarding data protection and privacy and applies to those who process and control personal information (with some exceptions for individuals who process such data in a personal capacity) about individuals in the EU.[155] However, once again, due to the global nature of digital services, the GDPR rules extend to organisations outside of the EU in some instances, and can be enforced against such organisations.[156] For example, a US-based digital service may want to participate in both European and Australian markets and so may decide to adhere to the GDPR rules for all users, which will then be reflected in its privacy policies and its practices. This is why many users in Australia experience the presence of the GDPR through, for example, pop-up windows seeking consent to collect 'cookies' (i.e., data that tracks a user's presence across the internet). In some instances, organisations apply different rules to users based in different jurisdictions. For example, a US-based digital service with customers in Europe and Australia may decide to apply the GDPR to its European customers but not to its Australian ones.

149 Associated Press (2019).
150 United States Federal Trade Commission (2019).
151 United States Federal Trade Commission (2022).
152 The COPPA settlement is in addition to another simultaneously announced settlement with Epic, whereby the company will repay US$245 million to users for illegal charges billed to them (United States Federal Trade Commission, 2023). The settlement is yet to be approved by the Federal Court.
153 Cleary & Pickett (2023).
154 European Union (2016a).
155 Ibid., Article 3.
156 Ibid., Article 3.

The GDPR recognises that children deserve specific protection in relation to their personal data because 'they may be less aware of the risks, consequences and safeguards concerned'.[157] One measure designed to protect children is Article 8 (known by the short-hand, the 'GDPR-K') which states that the collection of data about children under 16 must only take place with the consent of 'the holder of parental responsibility over the child'. This is unless specific member states, by law, have a lower age of consent (e.g., in Austria this is 14 and in Spain it is 13), though this lower age can never be lower than 13.[158]

GDPR principles of 'data minimisation' and the 'right to be forgotten'

A key principle of the GDPR is 'data minimisation', meaning the collection of any personal information (i.e., data) must be 'adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed'.[159]

The GDPR also provides, in Article 17,[160] that individuals whose personal information has been collected by a controller have a *right to erasure* (known as the 'right to be forgotten'). This means that individuals can request controllers to erase data about them, if one of the six grounds outlined in Article 17 are met. That said, a controller may be able to resist a request to erase data if, for example, that data was being used to serve a public interest. The right to erasure applies to adults and children alike, but it has particular significance for children, not least as a mechanism for furthering their rights to privacy and development, and providing them with some level of control, even into adulthood, over some of the digital traces that build up throughout their childhoods.[161]

The Digital Services Act

The EU's Digital Services Act ('DSA') came into force at the end of 2022 and will take effect in February 2024. It applies to a wide range of providers of digital services and contains provisions designed to protect users of these services across many aspects of their engagement with them. Among other things this includes better protection for children and young people. The recitals of the Act explain that online platforms should 'take appropriate and proportionate measures to protect minors' which might include implementing age-appropriate design principles—for example, ensuring that where appropriate, privacy settings are high by default—or adopting standards or codes of conduct to better protect minors. The Act also seeks to prohibit providers from displaying advertisements, based on profiling using the recipient's personal data (i.e., surveillance capitalism) where they are aware 'with reasonable certainty' that the recipient of the service is a child.

Australian regulation

The personal information of Australians is regulated through federal, state, and territory privacy laws and privacy principles. The main federal law is the *Privacy Act 1988* (Cth). It requires entities bound by the Act (federal government agencies, large private sector organisations and some other private sector organisations)

157 European Union (2016b).
158 European Union (2016a, Article 8).
159 European Union (2016a, Article 5).
160 European Union (2016a, Article 17).
161 Bunn (2019); Leaver (2020).

to comply with a set of Australian Privacy Principles (APPs). These permit a wide range of personal information to be collected and allow it to be used and shared with others, provided that entities notify individuals about their information practices and, in some cases, obtain their consent. Where consent is required, the Privacy Act does not stipulate whether individuals must be a particular age in order to provide it. However, the regulator (the Office of the Australian Information Commission, or 'OAIC') advises that entities which are not able to assess capacity to consent on an individual basis, may presume that individuals aged 15 or over do have capacity to consent.[162]

The notice and consent model on which Australian information privacy protections are based has been criticised for placing 'an unrealistic burden on individuals to understand the risks of complicated information handling practices.'[163] This criticism, among others, has prompted a review of the Privacy Act which is ongoing, at the time of writing.

The latest Privacy Act Review report notes the need to take particular care of children and their personal information[164] and proposes several changes to the Privacy Act to account for this. These include, requiring entities to take into account children's best interests as part of considering whether a collection, use or disclosure of their information is fair and reasonable;[165] prohibiting direct marketing to a child or targeting of a child (with some exceptions and only then when in their best interests);[166] and prohibiting trading in children's personal information.[167] The Report also recommends the introduction of a Children's Online Privacy Code to 'address how the best interests of child users should be supported in the design of an online service.'[168] The Report recommends retaining the OAIC's guidance (referred to above) as to the age at which children should be considered to have capacity to consent to the collection or use of their personal information. The report also recommends the introduction of a right to erasure that would apply to adults and children alike.[169]

Snapshot of other jurisdictions

Other international jurisdictions that specify rules regarding the collection, storage, and use of children's data includes specific state jurisdictions like the *California Consumer Privacy Act* (CCPA)[170] in the US where children in the state of California aged between 13-16 must 'opt-in' and authorise 'the sale of their personal information.' As a result, businesses under California's privacy law must ask consumers if they are over the age of 16 before using the digital service. In the UK, the 'UK GDPR',[171] which sits under the *Data Protection Act 2018*, follows similar lines to the GDPR, although UK law outlines that children aged 13 or older are able to provide consent for their data to be collected. In China, the *Personal Information Protection Law* (PIPL)[172] regulates the collection of data online and children's data, being data produced by those under the age of 14; this data is recognised as 'sensitive personal information'. This contrasts to Japan's *Act on the Protection of Personal Information* (APPI)[173] and Singapore's *Personal Data Protection Act* (PDPA)[174] which do not specify rules for 'minors' (i.e. those who, according to the law of those jurisdictions, are under the age of 18 or 21, respectively).

162 Office of the Australian Information Commissioner (2023).
163 Attorney-General's Department (2022, p. 3).
164 Ibid., p. 146.
165 Ibid., p. 153.
166 Ibid., p. 217.
167 Ibid., p. 217.
168 Ibid., p. 10.
169 Ibid., p. 11.
170 Office of the Attorney General (2023).
171 Information Commissioner's Office (2023a).
172 Baker McKenzie (2023).
173 Personal Information Protection Commission Japan (2023).
174 Personal Data Protection Commission (2021).

We highlight the above to underscore the complexity of the regulatory landscape whereby different rules, particularly around the 'digital age of consent', are applied to different countries. Advocates of child rights point to the challenges for regulators to 'strike the optimal balance',[175] in the sense that a higher age of consent favours the general protection of children and a lower age of consent favours children's rights to participate, which is an obligation under the UNCRC. In order to understand how these regulations play out in practice, it is important to highlight how companies attempt to enact these regulations through platform policies.

Platform policies

Digital products and services are required to have policies that regulate and shape user experiences online. These types of regulations are displayed through Terms of Service (ToS)—also known as 'Terms of Use' (ToU) or 'Terms and Conditions' (T&Cs)—as well as privacy policies, which are legal documents that outline the obligations of both the platform and its user. Platform regulations are also displayed through moderation policies which specify to users of a particular platform the rules of engagement (i.e., what content is or is not allowed on the site and what consequences will take place when users violate those rules).

Terms of Service

The ToS prescribes the intended use of a digital product or service and outlines the legal obligations of both the platform and the user. It is intended to be a contractual agreement and is often very long and describes the agreement in legal terms. While advocates have critiqued the inaccessible nature of these documents,[176] in order to use the product or service the onus is on the user to accept the ToS, irrespective of whether the user understands them or has even accessed and read them. For example, a user wishing to use Netflix must accept their ToU which outlines that the user must agree to pay the membership fee until they cancel their subscription, agree to not reproduce the content on the platform, and agree that Netflix is not liable for any damages if there are interruptions from the service, to name a few provisions. While these agreements appear reasonable in protecting the proprietary product or service of the platform, other conditions found within ToS and privacy policies appear less reasonable and may not be in the interests of the user. What is more, companies often state in their ToS and privacy policies that they have the right to change the terms at any time, without notice, and that the user will be taken to have agreed to the new terms.

Privacy Policies

In addition to ToS, many digital products and services have an accompanying privacy policy, which is a legal requirement in many jurisdictions.[177] A privacy policy outlines what data (i.e., personal information which can include name, age, location, images, viewing history, engagement on the platform, etc.) is

175 Livingstone (2018).
176 Hern (2015).
177 Such as the Australian *Privacy Act* 1988.

collected, stored, and used by the platform. Akin to the ToS, accepting the current privacy policy is often a precondition of using the product or service. It is within the privacy policies of many platforms that the particular data protection rules stipulated by state regulations, like within COPPA and the GDPR, are articulated by the platform to the user. For example, parents and carers may consent for platforms to collect their children's data when they agree to a specific platform's privacy policy. However, privacy policies are often opaque to users and may use vague and legalistic language which does not make it clear what data is actually collected and how it is used—specifically, how the data collected about the user is monetized by the platform.[178]

Moderation Policies

On platforms that support or require user-generated content, a moderation policy will often exist alongside the ToS and privacy policy. A moderation policy is not a legal document but it does outline the code of conduct that applies to users of digital products and services, and the consequences of violating these rules. Moderation policies are called different things on different platforms: on TikTok, it is referred to as 'Community guidelines';[179] on Facebook as 'Community Standards';[180] and on Reddit, a 'Content Policy'.[181] Moderation policies typically prohibit hate speech, discrimination, and the sharing of obscene and explicit content on the platform. These policies also often outline the consequences of violating these rules, such as a user receiving formal warning, having their content shown to a smaller audience, or losing access to their account either temporarily or permanently.

While moderation policies are in place to protect general users from harm and sustain the particular culture of the platform, they are limited in that they often provide overly broad definitions about what content gets moderated. For example, Facebook's rule against showing nudity on the platform was challenged in the case of users sharing the historical image of nine-year-old Kim Phúc during the Vietnam war.[182] Facebook initially removed and banned the image, as it was seen to violate the nudity rule. However, after receiving backlash from the international community, the platform reversed their decision as they accepted the historical significance and nuances of this case. The challenge with many moderation policies is striking the balance between having overarching rules and being flexible to the nuances in which they are enforced. Indeed, concerns over the lack of transparency as to how platforms moderate content has led to the formation of external review bodies like the Oversight Board,[183] which functions somewhat like a 'supreme court' for Facebook's content.

A better Children's Internet pays close attention to the ways that platforms administer the regulations that govern both them and users' experiences. The best interests of children are at the forefront of a better Children's Internet and for platform policies, this means more transparency about how children may experience the platform so that children, parents, and families can make informed choices.

178 See Chapter 7 of the Australian Competition and Consumer Commission's (2019) 'Digital Platforms Inquiry'; van Dijck et al. (2018).
179 TikTok (2023).
180 Meta (2023).
181 Reddit (2023).
182 Levin et al. (2016).
183 https://oversightboard.com/

Design codes

A number of jurisdictions around the world have implemented standards-based regulations that aim to improve the way the digital world is, foremost, designed and operates for children and young people. These have largely emerged from data protection and privacy regimes in Europe. They generally outline a set of principles that embed a 'best-interests' approach to processing children's data. For example, the UK's *Age Appropriate Design Code*,[184] Ireland's *Fundamentals for a Child-Oriented Approach to Data Processing*,[185] France's *Les droits numériques des mineurs*,[186] Sweden's *The Rights of Children and Young People on Digital Platforms*,[187] and the Netherland's *Code for Children's Rights*.[188] These codes implement 'upstream' regulations around data collection and processing, such as by requiring high 'privacy-by-default' settings to minimise the collection and use of children's data and requiring risk audits and impact assessments to be undertaken before children's data is collected and used. Similarly, the eSaftey Commissioner in Australia has introduced *Safety by Design*,[189] which includes an assessment tool for start-ups and enterprises to better understand how safety can be at the centre of their design process. The aim with all of these different design codes is to ensure that stronger protections for children are built into the design of digital platforms before specific harms (such as contact with adult strangers or broadcasting live locations) can occur. These design codes therefore deliberately place proactive responsibility on digital platforms to enhance protections for children. However, France notably includes some responsibilities for parents, children, and educators.

More recently, the US state of California introduced an *Age Appropriate Design Code*,[190] which focussed on similar systemic protections for children, such as requiring impact assessments around data use and prohibitions on the collection of geolocation data. The Code is, however, subject to an ongoing legal challenge for potential conflicts with freedom of speech protections.

"The way we design these systems influences and shapes the way people use them"

—Lauren Glina, EdTech Startup A.ga.pe

184 Information Commissioner's Office (2023b).
185 Data Protection Commission (2023).
186 Commission Nationale de l'Informatique et des Libertés (2023).
187 Swedish Authority for Privacy Protection (2021). .
188 University of Leiden & the Waag Organisation (2021).
189 eSafety Commissioner (2023b).
190 Common Sense Media (2023).

Case Study 10: 'By Design' Frameworks

The Digital Futures Commission, a subsidiary of the 5Rights Foundation, has in recent years produced several 'by design' frameworks, namely, *Playful by Design*[191] and *Child Rights by Design*.[192] These frameworks are grounded in critical research and have been produced in consultation with children and young people to explore how children's lives are being reconfigured by digital innovation.

For instance, *Playful by Design*, which surveyed over 1000 children aged 6 to 17 in the UK, offers evidence-based recommendations to the designers of digital products and services that aim to improve children's opportunities for 'free play' in the digital environment. Free play refers to child-led, imaginative, voluntary, open-ended play. By guiding designers to situate children's quality play experiences at the heart of their design processes, this framework stipulates that digital products and services for children that seek to be labelled as 'Playful by Design' need to meet seven key recommendations, namely: be welcoming, enhance imagination, enable open-ended play, no commercial exploitation, ensure safety, allow for experimentation, and be age-appropriate.

191 Livingstone & Pothong (2021).
192 Digital Futures Commission (2023).

Family account management and parental regulation

Another way that the Children's Internet is regulated is through the reliance on family account management, which may be characterised as a shift in responsibility for children's privacy and safety from companies to parents and carers. Responsible adults potentially spend considerable time and effort managing their children's accounts across multiple devices and services. It may not be unusual, for instance, for the parents of a digitally connected child to have to manage several digital services and experiences simultaneously, for instance:

- iPad use, including content and privacy restrictions, in-app purchase settings and screen time settings
- Messenger Kids use, including monitoring the parent dashboard and attending to push notifications based on their child's activity
- Nintendo Switch use, including use of the Nintendo Switch Parental Controls smart device app
- Roblox customisable parental controls, including age-related appropriate experiences and spending limits.

Each time a parent or carer has to manage a child's additional online service, several steps are required. A case in point is setting up a mobile phone service for a child under 13. For instance, if a child is provided with a Google Pixel phone, a Google account is required to operate the device and this requires an email account to be established, in this case a child account under the management of an adult's gmail account. The child gmail account is managed via an app called 'Family Link' on the adult's mobile phone. A parent or carer can then view the location of their child's device, their child's app activity, their screen time, their device's battery level, and control their child's Google Play store activity.

Therefore, a significant amount of parent or carer labour is associated with the management of children's digital experiences and the technology companies rely on this labour as part of their justification for making products and experiences available to children. They also rely on this parent labour to significantly reduce the costs associated with direct moderation and more advanced technological solutions and design features that may make children's experiences more private, safe, and pleasant. In moving towards a better Children's Internet, the labour that comes with family account management needs to be recognised and efforts need to be made to alleviate this burden on parents and careers as the responsibility to keep children safe online does not solely lie with them. Indeed, the responsibility to keep children safe online spans across governments, industry, families, and wider society.

Summary and Future Considerations

In this section we mapped out how the Children's Internet is currently accessed and governed through overlapping state regulations, corporate policies, legal frameworks, and social norms. We described how issues pertaining to children's online safety, privacy, data collection and commercialisation are prominent areas of interest and concern within regulatory responses at the local, national, and international levels. We pointed to efforts to implement design codes to embed better quality experiences into the make-up of children's products and services, and as an added complexity, we discussed the self-regulatory practices that families and children are expected to adopt in their engagement with the Internet. Reflecting on these vast areas of regulating the Children's Internet, emphasises that successful regulation requires a fair balance between government regulation, technology company policies, and personal responsibility. In calling for a better Children's Internet we put forward the following considerations:

- UN conventions such as Rights of the Child and General Comment No. 25 should be at the forefront of government and industry decision-making when it comes to the Children's Internet. These conventions should be referred to and actioned by all stakeholders involved in the process of producing and regulating children's products, services, and content. By following these overarching, internationally ratified, principles—that were generated in consultation with children and child experts—the diverse experience of the Children's Internet can have an underlying commonality that assures children's best interest are protected.
- All efforts should be made to minimise the collection of data generated online both from children and about children (e.g., generated by families and schools etc). Moreover, technology companies and digital platforms need to proactively find more effective ways to avoid the commercialisation of children's data. Children have a right to be forgotten as their digital footprint in childhood need not be carried into adulthood. This means that transparency by industry stakeholders is key to current internet experiences because children and families need to be able to make informed choices about sharing personal information, now and into the future.
- Governments, industry and wider society need to work towards alleviating the burden on parents and families to navigate complex family account management controls. There is currently an over-reliance on 'parental controls' which raises questions about how flexible these forms of self-regulation are to accommodate different family practices and beliefs. A better Children's Internet puts less emphasis on individual practices and fairly distributes responsibility of safety across all stakeholders.

6

Children and Families Creating the Children's Internet

To move towards a better Children's Internet we need to acknowledge and recognise the contributions made by children and their families to the construction of the Children's Internet. Children are co-creators of the Children's Internet through their participation with digital media, digital games, and their play—both online and offline. By extension, parents, carers, and families also co-create the Children's Internet as they share information and enable children's digital participation. As such, media literacy for both children and families is key in developing positive internet experiences for a better Children's Internet. This section highlights that:

- the Children's Internet is co-created through children's digital making and participation online
- children engage in digital labour when they are online. This labour ranges from passive interactions with digital platforms (which generates data that can be commercialised), to creating content and experiences for other children, and participating in brand deals as a child influencer
- parents and carers contribute—sometimes in problematic ways—to children's online presence through 'sharenting' practices
- the development of media literacy can help support children and adults alike to successfully use and make media for positive personal and social outcomes.

The Internet allows children to directly participate in the creation of content and experiences for themselves, other children, and broader audiences. Digital platforms like Minecraft and Roblox, for instance, promote digital making[193],

including the creation of artefacts, dwellings, settings, and games for other children to experience. Services like Meta's Messenger Kids invite children to interact with each other through video chat and by using stickers, gifs, sound effects, and drawings; and they can share their own creations with each other. Some children make video content for YouTube,[194] or play-act being YouTubers with each other as part of their in-person play at home or in the school yard.[195] Children's social media platforms like Zigazoo invite children to participate in the creation of online communities by posting videos in response to challenges (see Case Study 11). Children also participate online by commenting on other people's content, by making fan art, and through offering commentary and reviews. A small number of children become popular as online influencers who produce content with the assistance of adults. And adults may gain an online following as a result of sharing images of their children and parenting processes, colloquially referred to as 'sharenting'.

In this section we draw attention to some of the opportunities and challenges associated with children and families' direct involvement in creating the Children's Internet. The section also draws particular attention to the importance of media literacy for children's digital media participation. We argue for the need to promote knowledge and skills across four 'building blocks' of digital media literacy,[196] that is, the application of digital materials, conceptual understandings, media production processes, and media analysis.

Digital making and genres of participation

'Digital making'[197] allows children to be playful and to experiment with digital technologies and to share their creations with family and friends. As soon as they begin to interact with technologies like creativity apps, children are involved in forms of digital making through the manipulation of digital materials. As they become more involved with digital media, most children are likely to experiment with increasingly sophisticated forms of digital making and this may begin to resemble more formal examples of media production.

"The move towards user-generated content has brought children from 'over there' to 'in here', and immediately lifted the way stories are told and the way that children are involved in storytelling; they are actually part of the creation"

—Michael Carrington, Executive Producer for Carrington Media

One way to think about children's digital practices is through the lens of 'genres of participation', which describe the broad ways that children and young people may participate online. During the 2000s, Mizuko Ito and colleagues paid close attention to how young people were participating with digital technologies and developed the three broad 'genres of participation': hanging out, messing around, and geeking out.[198] These remain useful categories for thinking about the kinds of activities children may participate in online. Children may 'hang out' in a space like Messenger Kids, sharing 'everyday' digital items like emojis and gifs with each other. They may 'mess around' on a platform like Roblox to begin creating meaningful digital experiences for other children. Or they might 'geek out' and begin to learn sophisticated digital skills as they create videos to share on YouTube. Research suggests that far more children are more likely to be 'hanging out' than they are to be 'geeking out' with

193 Dezuanni (2018).
194 Leon & Ames (2021).
195 Tolbert & Drogos (2019).
196 Dezuanni (2015).
197 Dezuanni (2018).
198 Ito et al. (2010).

digital technologies.[199] Nonetheless, many children are involved in digital media participation at some level and this is often experienced as fun, rewarding, and empowering.

Children's digital play

Children's play increasingly takes place across digital and non-digital spaces. As the Digital Futures Commission has shown, play matters for children's development, self-directed learning, and is an effective means of teaching and guidance. Play is also therapeutic and contributes to and is an enactment of children's wellbeing, and is a child's right.[200] While research suggests that children are more likely to enjoy play in non-digital contexts than online, children also find the qualities of that play similar across the two contexts.[201] Research also conducted by the Digital Futures Commission (see Case Study 10) found that the qualities of 'free play' in the digital world, as stipulated by children, include play that is intrinsically motivated, voluntary, open-ended, imaginative, stimulating, emotionally resonant, social, diverse, involves risk taking but is safe, provides a sense of achievement, and is immersive.[202]

Children create the Children's Internet through play in a number of ways. Their leisure time often takes place in and around digital technologies and media involving practices such as viewing, playing, and listening to digital content and experiences either alone, with family members, or with friends. Children may also have 'virtual' playdates where they 'visit' a friend to hang out in an online space like Minecraft or Roblox whilst talking to their friend 'live' via a video call or using the in-game text functions to communicate. In addition, children's offline play is sometimes based on their digital experiences. Research about children's school playground cultures, for instance, demonstrates that playground games are often based on media and video games-based stories.[203]

Dedicated spaces for children's online play have existed for many years. One of the more successful examples is Club Penguin, which was launched in 2005, and by 2013 had over 200 million user accounts. The company that created Club Penguin, New Horizons, was purchased by Disney in 2007. Club Penguin was a browser-based game designed for users aged 6-14 and encouraged children to interact with each other online through direct interaction and chat. Similar online spaces for children have included Moshi Monsters and Animal Jam. Each of these services has focused on building an online community for children and has relied on children's active participation and play for their success.

199 Ito et al. (2010).
200 Cowen (2020).
201 Livingstone et al. (2023).
202 Livingstone & Pothong (2021).
203 Willett et al. (2013).

Case Study 11: Zigazoo kids

Zigazoo Kids is an online social media space for children aged 3-12, and claims to promote 'non toxic social media'. Zigazoo was first launched in 2020 by ex-teachers with the aim of producing an 'empowering, positive and authentic'[204] social media space for children. Zigazoo is a TikTok-style platform that invites children to post videos in response to socially responsible, safe, and fun challenges. Example challenges include topics such as: 'Can you teach us how to play your favourite sport'. Challenges are often put forward by Zigazoo partners such as museums, zoos, sporting teams, and child-friendly social media entertainers. The company site claims: 'If you're a fan of dance, funny comedy, ASMR,[205] fashion, sports, animals, gaming, entertainment, or anything else, you will find your people on Zigazoo'.[206]

Zigazoo relies directly on children's participation and user-generated content for its success. Children can reply to videos posted on the platform with their own video and there is less emphasis on the platform on text comments and direct messaging. The platform claims that this leads to a safer and more positive space and that their 'human-in-the-loop' approach to moderation reinforces this. In early 2023, Zigazoo launched two separate products: *Zigazoo* (retaining the original product name but for young people over 13), and *Zigazoo Kids* for 3-12 year olds.

Children's fandoms and commercial culture

Children contribute to the creation of the Children's Internet through their dedication to particular stories, characters, and social media entertainers. As fans, children may be involved in creating artworks, stories, reviews, and commentary to express their loyalty and admiration, which they upload to fan sites. This may be solicited by social media entertainers who invite children to send them artefacts to be featured in their videos. For instance, Minecraft YouTuber Stampy Longhead (discussed in Case Study 6) spends a segment of each of his 'Lovely World' videos recognising fan contributions.

"Originally, I thought we were making content for kids to support them and then I realised that we were doing more than that, we were reflecting their values and what they loved back at them"

—Cate McQuillen, Creator/Producer of dirtgirlworld and Get Grubby TV

204 Zigazoo (2023a).
205 ASMR stands for Autonomous Sensory Meridian Response and is a genre on digital platforms, like YouTube and TikTok, that aims to relax the viewer.
206 Zigazoo (2023b).

Spectacular examples of children's internet-based fandoms include instances where online celebrities appear at live events. In Australia, high profile YouTuber DanTDM famously sold out the Sydney Opera House in record time as children flocked to see his live show. Thousands of children also attend industry events featuring their favourite YouTubers, such as VidCon, a large conference featuring celebrity video producers.

Children's fandoms may also become the target of companies' marketing strategies as they aim to 'evangelise' their fans.[207] While there is a long history of involving fans in marketing hype, on digital platforms companies aim to harness fan labour to create social media content that encourages their social media contacts to make purchases. Fandom also leads to other forms of consumerism. For instance, popular child social media influencer Ryan from 'Ryan's World' (see Case Study 12), who is known for his toy unboxing videos, has an extensive range of merchandise and toys which may become included in children's play.

In respect to commercial culture, unboxing videos on YouTube have been particularly controversial because they often depict a child going through the process of receiving a new toy, unboxing it, and then playing with it. Critics argue that unboxing is a form of direct marketing, and companies often sponsor popular YouTubers to unbox their products. However, researchers have argued that unboxing videos are popular because children enjoy watching other children playing and that the videos may help children to make discerning choices about consumer products; arguing that on one level unboxing videos are product reviews.[208]

"If you were going to be more interventionist, you could require YouTube and others to put money into a fund as an ongoing percentage and redeploy it using an agency to provide more opportunities for people to create content, as in the case of children creating for children"

—Matt Deaner, CEO of Screen Producers Australia

Creating monetary value from children's digital media participation

Technology companies monetise children's and families digital participation in several ways. Most directly, platforms like those owned by Meta (Instagram and Messenger Kids) and Alphabet (YouTube), as well as games like Minecraft and Roblox rely directly on user participation for the development of content and experiences. As we have discussed throughout this document, the business models associated with media, technology, and gaming companies (like surveillance capitalism which we described in Section 5), increasingly rely on interactions with story worlds across multiple platforms and on audiences and fans adding value through direct participation.

Some platforms, however, more directly monetise user-generated content, or content produced by everyday people, some of whom may attract large audiences. YouTube, Instagram, and TikTok, for instance, rely on everyday users to consistently post and consume content as well as the advertising that sits alongside that content. Creators are rewarded in various ways for building an audience and sustaining other users' engagement with the platform.[209]

207 Coulter & Lao (2021).
208 Marsh (2015); Walczer (2021).
209 Cunningham & Craig (2019).

The Roblox platform has attracted particular criticism for its business model, with some commentators arguing that it directly exploits young people's creativity. Roblox is a digital making platform that allows anyone to make a game and to sell it to other players using robux. Roblox has explicitly aimed to attract users to create content for the platform with the promise of making an income. At one point Roblox promoted its platform through the slogan: 'Make Anything. Reach Millions. Earn Serious Cash'.[210] However, as noted in Case Study 7, and outlined in more detail in an investigation by 'People Make Games',[211] Roblox pays a comparatively small percentage of revenue to developers on the platform. A child or young person may spend hundreds of hours creating a Roblox experience which may or may not become popular with other users.

Roblox defends their approach by arguing that they provide an environment for creators to improve their games through audience feedback, primarily by providing monetary incentives for creators who can attract the most audience members. In describing this feedback loop, Roblox says they are helping creators improve their understanding of audiences as well as their entrepreneurial tech skills—skills that may feed into problematic imaginaries (see Section 2). When addressing parents and carers, Roblox stresses the potential for children to develop technology skills, positioning itself as a benefactor for game development, providing tools to learn how to code, design, and tell stories.

More generally, Roblox's 200 million plus active monthly users—about half of whom are under 13 years of age[212]—spend robux on the platform to play other people's creations and purchase in-game items and premium content, earning Roblox a very significant amount of money. Roblox registered revenue earnings of US$2.2 billion in 2022.[213] Robux sales and premium subscriptions are only two of Roblox's monetization strategies. Advertising, licensing, and royalty fees also add to their profit, and of particular concern in relation to children's rights is targeted advertising which relies on Roblox collecting data from its users.[214] Working towards a better Children's Internet would see the introduction of legislation that could ensure the recognition and protection of children's digital labour, such as that facilitated through platforms like Roblox.

"Parents are like, 'I thought they could only navigate to Netflix,' when you're telling them now, 'they can create an augmented reality object!' Families had no idea that their three or four year old even had the capability to do the actual making and creating of things: explaining what's going on in their heads and the way that they're exploring the world—it's being captured in this most extraordinary way"

—Educational Technology Expert employed by a large international tech company

210 Parkin (2022).
211 People Make Games (2022).
212 Ruby (2023).
213 Ibid.,
214 Truth in Advertising (2023).

Child influencers

The content creator or influencer industry is vast, spanning most online platforms and almost every country in the world. Influencers who make a living online can be expert voices on a particular topic or become experts at building large followings based on many things including fashion, travel, cooking, and so forth. By 2015, influencers had been around long enough to transition from crafting their own images and stories to promote products and services, to styling their offspring as 'micro-microinfluencers'.[215] These early second-generation influencers began life to some extent as brand extensions of their parents and their parents' online fame. Family influencers (where the entire family of parent(s) and children are the focus) and child influencers (with accounts specifically focused on the children) are significant influencer genres. Some child influencers begin as babies; their parents run the accounts and document their lives whilst also often endorsing baby toys, clothes, foods, and other products that are shown or featured in the photos and videos posted online.[216]

Child and family influencers can prove controversial. In some high-profile cases, parents running certain types of accounts have pushed children to work long hours, or they have been subject to pranks and other practices that border on abuse. In the most extreme cases in the US, parents have lost custody of their children after courts decided their production practices amounted to child abuse.[217] For most family and child influencers, questions around labour—how much a young person can and should 'work' in creating content—and questions around privacy both in the present and in the future arise frequently.

In many jurisdictions, including Australia, it is unclear if any labour laws directly apply to child influencers since it is very hard to draw the line between play, normal sharing of family moments, and commercial sharing. However, the US state of Illinois has recently adopted the country's first law protecting child influencers; a law which sees a portion of any earnings from online videos of a child including the "likeness, name, or photograph of the minor" in a trust for them to access upon adulthood.[218]

Both influencer marketing agencies and parents-turned-producers are aware of the controversies around child influencers and questions of labour, payment, and indeed 'fun', and some deploy strategies to try and highlight, or construct, moments that are less polished, such as behind the scenes moments of play and humour (or 'calibrated amateurism'[219]). And as more and more young people mention becoming an influencer or YouTuber as a career aspiration there has been significant pushback in the media to the extent that even a child's toy featuring a wooden ringlight and mobile phone—toys used for playing, effectively, an influencer—has caused something of a moral panic in the press.[220] While it is important to investigate concerns about child influencers, it is also important to underscore that children need to see themselves represented online—meaning children need to participate in the production of children's media. A better Children's Internet takes relevant steps to recognise children's labour online and protects them from exploitation while continuing to support the development of high quality children's digital media.

215 Abidin (2015).
216 Archer & Delmo (2023).
217 Leaver & Abidin (2017).
218 Yang (2023).
219 Abidin (2017).
220 Rodriguez & Levido (2023).

Case Study 12: Ryan's World

Ryan Kaji is a 12-year-old American child influencer on YouTube, who is known for his toy unboxing videos on the channel *Ryan's World*.[221] In 2015, the then 3 ½ year-old Ryan began making videos with the help of his parents and since then has amassed a following of over 35 million subscribers on YouTube. When Ryan first started making videos, the channel was called *Ryan's ToysReview*, and Ryan would be seen cracking open a giant papier-mâché egg filled with toys. These videos did so well that after a year, both parents quit their jobs to support Ryan's channel.[222] Ryan's YouTube content now spans short animations, educational videos, family vlogs, to name a few; all of which are far from amateur and have high production value.

According to Forbes, Ryan is estimated to be worth US$30 million and in 2017, at just age 6, became the youngest person to ever make a Forbes top earner list.[223] Ryan's wealth comes from a mix of AdSense revenue (money from YouTube), merchandise, and a proprietary line of toys that can be purchased from Target.[224] Ryan is an exemplary case study into the reach of audience and wealth that can be generated by child influencers.

Sharenting

'Sharenting'—a portmanteau of the words sharing and parent—is a somewhat controversial term that can either simply describe parents sharing anything about their children on social media, or which can sometimes immediately imply oversharing and poor practice that possibly impinges on children's privacy. At times, sharenting is also used as a complaint by other people when their feeds are filled with photos and videos of other people's children.[225] Sharenting begins long before children have any agency or the ability to have any say on whether they want their lives shared in pictures and videos. Indeed, for many children the sharing of the 12-week or 20-week foetal ultrasound photos on social media has become a right of passage as expectant parents share their news online. This also means that the digital traces of a young child appear online even before they are born.[226] As children grow, their own expectations about whether they want their images shared online or not may also change. There are many well-documented cases of young people deciding they are no longer comfortable with their photos being shared online publicly, or sometimes online at all, which can provoke real moments of tension as families negotiate and adjust their sharing practices.[227]

On a commercial front, sharenting provides a reason for parents, children, loved ones, and friends to be users of, and stay on, social media platforms including Instagram, Facebook, Wechat, and TikTok amongst many others. Indeed, over

221 https://www.youtube.com/@RyansWorld
222 Luscombe (2021).
223 https://www.forbes.com/profile/ryan-kaji/?sh=2e3cd5376f3c
224 https://www.target.com/c/ryan-s-world/-/N-nxa8t
225 Leaver et al. (2020).
226 Leaver & Highfield (2018).
227 Leaver (2020).

time, the algorithms of these platforms can repackage photos of children for their loved ones and offer them back as platform-provoked 'memories', showcasing just how cute children were two, three, five, or ten years ago.[228] In this way, sharenting leads to a kind of weaponised nostalgia which encourages parents and loved ones to stay on and with these platforms to experience the platform's equivalent of a photo album again and again. And each nostalgic moment is another time when platforms can serve advertising alongside these repackaged memories, making each moment of sharenting potentially reusable multiple times in the commercial logics of social media platforms.

A better Children's Internet sees technology companies and digital platforms providing more information to parents and carers, so that they can make the best decisions about their children's presence online. These efforts require technology companies and digital platforms to be more transparent about their data collection and commercialisation practices. It also requires families to be reflexive about their own values, expectations, and online behaviours.

"We realised what people really liked was being brought together to talk about what we mean when we talk about quality and excellence, so to exchange information, expertise, and ideas with people who share an interest in doing the best for children"

—David Kleeman, Senior Vice President of Global Trends for Dubit

228 Jacobsen & Beer (2021).

Media literacy

Children's, parents' and carers' participation in the creation of a better Children's Internet relies upon, and may be enhanced by, the ongoing development of media literacy, which includes the ability to successfully use and make media for positive personal and social outcomes. According to the Australian Media Literacy Alliance, a media literate person reflects on their own and others' media use; they understand how the media impacts people and society; they use a range of media technologies to communicate; and they successfully manage their personal, social, and public relationships using media.[229] Importantly, media literacy is not just a process of critiquing the media, but rather it involves considering how media can be used to improve society, for instance through active citizenship. One way to frame media literacy is to consider how it relies on the development and use of material, social, and cultural resources across four 'building blocks',[230] namely: digital materials, conceptual understandings, media production, and media analysis.

In digital contexts, digital materials are a basic 'building block' of communication. Digital materials consist of images, sounds, written text, and interactive elements. Using digital materials to successfully communicate relies on conceptual understandings such as knowledge about story structure, visual communication, and design processes. It relies on conceptual knowledge about what an audience will be interested in, and what will become popular, profitable, or persuasive. It also relies on conceptual knowledge based on fairness and ethics, because digital communication impacts other people, society, and the environment.

The processes for combining digital materials for a purpose—digital making and media production—is an essential building block of media literacy because it relies on technological and procedural knowledge. For example, successfully shooting video footage is not just a technological process—it requires the ability to choreograph people, objects, lighting, and physical space in relation to camera placement. Finally, ongoing media analysis is essential for media literacy because it is necessary to continually reflect on how and why media are produced by other people, and media institutions, and their motivations for producing media. It is also necessary to reflect on the ongoing impacts of media, including digital platforms.

Notably, media literacy is a life-long pursuit. It is not something that can be attained as a singular 'skill' because the media constantly evolves, particularly in digital contexts. Both the creation of media and media analysis relies on continual learning. A better Children's Internet, therefore, is reliant on the development of ongoing media literacy opportunities for children and adults. Alongside more effective regulation, better design decisions, and more ethical practice on the part of technology companies—media literacy is essential for improving the Children's Internet.

229 Australian Media Literacy Alliance (2022).
230 Dezuanni (2015).

Summary and Future Considerations

In this section we described how children and families co-create the Children's Internet through their digital making and participation online. We highlighted how children and families create value for technology companies and digital platforms, and pointed to some emerging concerns about children's online labour and 'sharenting' practices. This was done to demonstrate that greater support is needed to recognise and protect children's best interest and their labour online. Additionally, we shone a spotlight on the 'building blocks' of media literacy as a means to support children and families as they navigate their digital participation with the Children's Internet. While there are clear areas for improvement, we also want to underscore that the vast majority of children's internet experiences and their role in co-creating the Children's Internet will be benign, safe, and enjoyable. In calling for a better Children's Internet we put forward the following considerations:

- Children's participation online is not inherently bad and as a society it is important to support children's role in co-creating the Children's Internet. Children build communities, are creative, learn skills, and play when online and these activities can generate value for companies and digital platforms. While these commercial practices should be critically examined by governments and industry alike to check that the best interest of children is at the forefront, the fact that these practices take place should not negate children's rights to access these important digital experiences.
- It is paramount that policies and legislation are created to ensure the recognition and protection of children's digital labour online. Official processes need to be developed to ensure that any remuneration accumulated through commercial practices, such as sponsored content from a child influencer, is protected and distributed in the best interest of the child. Developing such policies and legislation should be made in consultation with children and families to generate balanced responses.
- Media literacy, for both children and adults alike, must be promoted. Having strong media literacy skills that equip both children and adults with the knowledge about how to reflect on their engagement and participation with media, will help build robust and considered internet experiences. The promotion of media literacy by governments, industry, educators, and families will support children's fun, productive, safe, diverse, and ethical internet experiences, now and into the future.

References

Abidin, C. (2015). Micromicrocelebrity: Branding babies on the internet. *M/C Journal, 18*(5). https://doi.org/10.5204/mcj.1022

Abidin, C. (2017). #Familygoals: Family influencers, calibrated amateurism, and justifying young digital labor. *Social Media + Society, 3*(2), 1-15. https://doi.org/10.1177/2056305117707191

Almqvist, B. (1994). Educational toys, creative toys. In J. H. Goldstein (Ed.). *Toys, play, and child development.* Cambridge University Press.

Apple Inc. (2008). Apple classrooms of tomorrow—today: Learning in the 21st century. White Paper. https://www.apple.com/ca/education/docs/Apple-ACOT2Whitepaper.pdf

Apps, T., Beckman, K., & Howard, S. K. (2023). Valuable data? Using walkthrough methods to understand the impact of digital reading platforms in Australian primary schools. Learning, Media and Technology, 48(2), 294-309. https://doi.org/10.1080/17439884.2022.2160458

Ariès, P. (1962). Centuries of childhood: A social history of family life (R. Baldick, Trans). Vintage.

Archer, C., & Delmo, K. (2023). Play is a child's work (on Instagram): A case study of the use of children as paid social media influencers to market toys. M/C Journal, 26(2). https://doi.org/10.5204/mcj.2952

Ash, J., Gordon, R., & Mills, S. (2022). Between gaming and gambling: Children, young people, and paid reward systems in digital games. Newcastle University and Loughborough University. https://repository.lboro.ac.uk/articles/report/Between_gaming_and_gambling_Children_young_people_and_paid_reward_systems_in_digital_games/21640190

Associated Press. (2019, September 5). YouTube fined $170m for collecting children's personal data. The Guardian. https://www.theguardian.com/technology/2019/sep/04/youtube-kids-fine-personal-data-collection-children-

Attorney-General's Department. (2022). Privacy act review report 2022. Australian Government. https://www.ag.gov.au/rights-and-protections/publications/privacy-act-review-report

Australian Broadcasting Corporation. (2022). Australian Broadcasting Corporation annual report 2022. https://about.abc.net.au/wp-content/uploads/2023/06/2021-22-ABC-Annual-Report_updated.pdf

Australian Broadcasting Corporation. (2023). Legislative framework – About the ABC. https://about.abc.net.au/how-the-abc-is-run/what-guides-us/legislative-framework/

Australian Communications and Media Authority. (2013). Guide to children's television classification. Australian Government. https://www.acma.gov.au/sites/default/files/2019-07/Guide%20to%20childrens%20television%20classification.pdf

Australian Competition & Consumer Commission. (2019). Digital platforms inquiry final report. https://www.accc.gov.au/about-us/publications/digital-platforms-inquiry-final-report

Australian Media Literacy Alliance. (2022). A media literacy framework for Australia. Google, Western Sydney University, QUT Digital Media Research Centre, and the Museum of Australian Democracy. https://medialiteracy.org.au/wp-content/uploads/2022/03/A3-Media-Literacy-Poster-web.pdf

Bajarin, T. (2022, October 11). Meta's VR vs Apple's AR strategy - Who will ultimately win? Forbes. https://www.forbes.com/sites/timbajarin/2022/10/11/metas-vr-vs-apples-ar-strategy-who-will-ultimately-win

Bakan, S. (2023, August 11). Bluey stars on world stage, but back home the future is bleak for Aussie kids' TV. The New Daily. https://thenewdaily.com.au/entertainment/2023/08/11/tv-bluey-childrens-shows/

Baker McKenzie. (2023). Global data privacy & security handbook – China: Minors. https://resourcehub.bakermckenzie.com/en/resources/data-privacy-security/asia-pacific/china/topics/minors#:~:text=Under%20the%20PIPL%2C%20personal%20information,personal%20information%20protection%20impact%20assessment

Barbrook, R., & Cameron, A. (1996). The Californian ideology. Science as Culture, 6(1), 44-72. https://doi.org/10.1080/09505439609526455

Baym, N. K. (2018). Playing to the crowd: Musicians, audiences, and the intimate work of connection. New York University Press.

Beavis, C, Dezuanni, M., & O'Mara, J. (2017). Serious play: Literacy, learning and digital games. Routledge.

Botturi, L. A. (2021). "Draw the internet": A visual exploration of how children imagine an everyday technology. Journal of Media Literacy Education. 13(3), 35-48. https://doi.org/10.23860/JMLE-2021-13-3-3

Bridle, J. (2017). Something is wrong on the internet. Medium. https://medium.com/@jamesbridle/something-is-wrong-on-the-internet c39c471271d2

Bronstein, M. (2023, June 20). Introducing experiences for people 17 and older. Roblox. https://blog.roblox.com/2023/06/introducing-experiences-for-people-17-and-older/

Brown, M. (2020, February 4). Giving parents even more control in Messenger Kids. Meta. https://about.fb.com/news/2020/02/messenger-kids-controls/

Bunn, A. (2019). Children and the 'right to be forgotten': What the right to erasure means for European children, and why Australian children should be afforded a similar right. Media International Australia, 170(1), 37–46. https://doi.org/10.1177/1329878X19848503

Cleary, J., & Pickett, T. (2023, February 14). "Fortnite" creator agrees to pay a record penalty for violating children's privacy laws. JD Supra. https://www.jdsupra.com/legalnews/fortnite-creator-agrees-to-pay-a-record-6733560/

Commission Nationale de l'Informatique et des Libertés. (2023). Les droits numériques des mineurs. https://www.cnil.fr/fr/les-droits-numeriques-des-mineurs

Common Sense Media. (2023). Fact sheet - California age-appropriate design code act. https://www.commonsensemedia.org/sites/default/files/featured-content/files/ca-design-code-one-pager-2023-1.pdf

Coulter, N., & Lao, M. G. (2021). Superfans and evangelizers. IDEAS Working Paper Series from RePEc. https://ideas.repec.org/p/hal/journl/hal-03173065.html

Cowan, K. (2020). A panorama of play – A literature review. Digital Futures Commission and 5Rights Foundation. https://digitalfuturescommission.org.

uk/wp-content/uploads/2022/02/A-Panorama-of-Play-A-Literature-Review.pdf
Critcher, C. (2006). Critical readings: Moral panics and the media. Open University Press.
Cunningham, S., & Craig, D. (2019). Social media entertainment: The new intersection of Hollywood and Silicon Valley. New York University Press.
Data Protection Commission. (2023). The fundamentals for a child-oriented approach to data processing. https://www.dataprotection.ie/en/dpc-guidance/fundamentals-child-oriented-approach-data-processing
Department of Infrastructure, Transport, Regional Development, Communications and the Arts. (2022). Subscription video on demand (SVOD) in Australia dashboard [dataset]. Australian Government. https://www.infrastructure.gov.au/research-data/bureau-communications-arts-and-regional-research/communications/subscription-video-demand-svod-dashboard
Department of Infrastructure, Transport, Regional Development, Communications and the Arts. (2023). National cultural policy – Revive: a place for every story, a story for every place. Australian Government. https://www.arts.gov.au/publications/national-cultural-policy-revive-place-every-story-story-every-place
Dezuanni, M. (2015). The building blocks of digital media literacy: Socio-material participation and the production of media knowledge. Journal of Curriculum Studies, 47(3), 416-439. https://doi.org/10.1080/00220272.2014.966152
Dezuanni, M., Dooley, K., Gattenhof, S., & Knight, L. (2015). iPads in the early years: Developing literacy and creativity. Routledge.
Dezuanni, M. (2018). Minecraft and children's digital making: Implications for media literacy education. Learning, Media and Technology, 43(3), 236-249. https://doi.org/10.1080/17439884.2018.1472607
Dezuanni, M. (2020). Peer pedagogies on digital platforms: Learning with Minecraft let's play videos. MIT Press.
Digital Futures Commission. (2023). Child's rights by design. 5Rights Foundation. https://childrightsbydesign.digitalfuturescommission.org.uk/
Di Placido, D. (2017, November 28). YouTube's "Elsagate" illuminates the unintended horrors of the digital age. Forbes. https://www.forbes.com/sites/danidiplacido/2017/11/28/youtubes-elsagate-illuminates-the-unintended-horrors-of-the-digital-age/?sh=28c51bd06ba7
Epic Games. (2022). The LEGO Group and Epic Games team up to build a place for kids to play in the Metaverse. https://www.epicgames.com/site/en-US/news/the-lego-group-and-epic-games-team-up-to-build-a-place-for-kids-to-play-in-the-metaverse
eSafety Commissioner. (2023a). In-app purchasing. https://www.esafety.gov.au/key-topics/esafety-guide/in-app-purchasing
eSafety Commissioner. (2023b). Safety by design. https://www.esafety.gov.au/industry/safety-by-design
European Union. (2016a). General data protection regulation. European Parliament. https://gdpr-info.eu/
European Union. (2016b). Recital 38: Special protection of children's personal data*. European Parliament. https://gdpr-info.eu/recitals/no-38/
Evans, B. (2020, July 23). Regulating technology. https://www.ben-evans.com/benedictevans/2020/7/23/regulating-technology

Foster, E. (2019, March 28). Young kids use smart speakers daily. Kidscreen. https://kidscreen.com/2019/03/28/young-kids-use-smart-speakers-daily-survey/

Foxtel Group. (2022). Foxtel Group first quarter fiscal 2023 results. https://foxtelgroup.com.au/newsroom/foxtel-group-first-quarter-fiscal-2023-results

FreeTV Australia. (2017). Telling Australian stories in the new media age. https://www.freetv.com.au/wp-content/uploads/2019/07/2017-008-Free-TV-Submission-Telling-Australian-stories-in-the-new-age.pdf

Future Market Insights. (2022). Smart/AI toys market. https://www.futuremarketinsights.com/reports/smart-ai-toys-market

Gee, J. P. (2007). What video games have to teach us about learning and literacy (2nd ed). Palgrave Macmillan.

Gouseti, A. (2010). Web 2.0 and education: Not just another case of hype, hope and disappointment? Learning, Media and Technology, 35(3), 351-356. https://doi.org/10.1080/17439884.2010.509353

Hardcastle, J. L. (2023, July 21). Watchdog mulls online facial age-verification tech – for kids' parents. The Register. https://www.theregister.com/2023/07/21/age_verification_tech/?utm_medium=share&utm_content=article&utm_source=twitter

Hern, A. (2015, June 15). I read all the small print on the internet and it made me want to die.

The Guardian. https://www.theguardian.com/technology/2015/jun/15/i-read-all-the-small-print-on-the-internet

Human Rights Watch. (2022, May 25). "How dare they peep into my private life?" Children's rights violations by governments that endorsed online learning during the Covid-19 pandemic. https://www.hrw.org/report/2022/05/25/how-dare-they-peep-my-private-life/childrens-rights-violations-governments

Information Commissioner's Office. (2023a). UK GDPR guidance and resources. https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/

Information Commissioner's Office. (2023b). Introduction to the Children's code. https://ico.org.uk/for-organisations/uk-gdpr-guidance-and-resources/childrens-information/childrens-code-guidance-and-resources/introduction-to-the-childrens-code/

Ito, M. (2009). Engineering play: A cultural history of children's software. MIT Press.

Ito, M., Baumer, S., Bittanti, M., boyd, d., Cody, R., Herr-Stephenson, B., Horst, H. A., Lange, P.G., Mahendran, D., Martínez, K. Z., Pascoe, C. J., Perkel, D., Robinson, L., Sims, C., & Tripp, S. (2010). Hanging out, messing around, and geeking out: Kids Living and learning with new media. MIT Press.

Jacobsen, B. N., & Beer, D. (2021). Quantified nostalgia: Social media, metrics, and memory. Social Media + Society, 7(2), 1-9. https://doi.org/10.1177/20563051211008822

Jenkins, H. (2006). Convergence culture: Where old and new media collide. NYU Press.

Kastrenakes, J., & Heath, A. (2021, October 26). Facebook is spending at least $10 billion this year on its metaverse division. The Verge. https://www.theverge.com/2021/10/25/22745381/facebook-reality-labs-10-billion-metaverse

Kelly, J. (2023, February 16). What happened to the metaverse? Financial Times. https://www.ft.com/content/bddec314-3f4c-4296-ae6f-eb2a5328c109

Kircher, M.M. (2016, June 16). Why the puppy filter makes everyone look good.

New York Magazine. https://nymag.com/intelligencer/2016/06/a-very-official-report-on-why-the-puppy-is-the-best-snapchat-filter.html

Kinder, M. (1991). Playing with power in movies, television, and video games: From Muppet Babies to Teenage Mutant Ninja Turtles. University of California Press.

Klein, A. (2023, March 24). Congress tells TikTok CEO: The app is bad for students and privacy. Education Week. https://www.edweek.org/technology/congress-tells-tiktok-ceo-the-app-is-bad-for-students-and-privacy/2023/03

Klopfer, E. (2023). Chocolate-covered broccoli and educational games [Video]. https://jwel.mit.edu/assets/video/chocolate-covered-broccoli-and-educational-games-webinar-excerpt

Kovach, S. (2021, March 11). Welcome to the metaverse, the sci-fi dream behind Roblox's $38 billion valuation. CNBC. https://www.cnbc.com/2021/03/11/roblox-rblx-goes-public-with-a-bet-on-the-metaverse.html

Lallo, M. (2020, August 10). 'Quality is fantastic': Netflix reveals $110m spend on Australian children's shows. The Sydney Morning Herald. https://www.smh.com.au/culture/tv-and-radio/quality-is-fantastic-netflix-reveals-110m-spend-on-australian-children-s-shows-20200807-p55jlb.html

Leaver, T., & Abidin, C. (2017, May 2). When exploiting kids for cash goes wrong on YouTube: The lessons of DaddyOFive. The Conversation. https://theconversation.com/when-exploiting-kids-for-cash-goes-wrong-on-youtube-the-lessons-of-daddyofive-76932

Leaver, T., & Highfield, T. (2018). Visualising the ends of identity: Pre-birth and post-death on Instagram. Information, Community & Society, 21(1), 30-45. https://doi.org/10.1080/1369118X.2016.1259343

Leaver, T. (2020). Balancing privacy: Sharenting, intimate surveillance, and the right to be forgotten. In L. Green, D. Holloway, K. Stevenson, T. Leaver, & L. Haddon (Eds.), The Routledge companion to digital media and children (pp. 235-244). Routledge.

Leaver, T., Highfield, T., & Abidin, C. (2020). Instagram visual social media cultures. Polity Press.

Leaver, T., & Srdarov, S. (2023). ChatGPT Isn't Magic : The Hype and Hypocrisy of Generative Artificial Intelligence (AI) Rhetoric. M/C Journal, 26(5). https://doi.org/10.5204/mcj.3004

LEGO Group. (2019, July 16). The LEGO Group kicks off global program to inspire the next generation of space explorers as NASA celebrates 50 years of moon landing. https://www.lego.com/en-us/aboutus/news/2019/july/lego-group-kicks-off-global-program-to-inspire-the-next-generation-of-space-explorers-as-nasa-celebrates-50-years-of-moon-landing?locale=en-us

Leon, L., & Ames, P. (2021). Girl YouTubers in Peru as economic agents negotiating gender and class identities. Global Studies of Childhood, 11(4), 331–343. https://doi.org/10.1177/20436106211055186

Levin, S., Wong, J. C., & Harding, L. (2016, September 10). Facebook backs down from 'napalm girl' censorship and reinstates photo. The Guardian. https://www.theguardian.com/technology/2016/sep/09/facebook-reinstates-napalm-girl-photo

Livingstone, S. (2018). Children: A special case for privacy? Intermedia, 46(2), 18-23. http://eprints.lse.ac.uk/89706/

Livingstone, S., & Pothong, K. (2021). Playful by design: A vision of free play in a

digital world. Digital Futures Commission and 5Rights Foundation. https://digitalfuturescommission.org.uk/wp-content/uploads/2021/11/A-Vision-of-Free-Play-in-a-Digital-World.pdf

Livingstone, S., & Pothong, K. (2022). Imaginative play in digital environments: Designing social and creative opportunities for identity formation. Information, Communication & Society. 25(4), 485-501. https://doi.org/10.1080/1369118X.2022.2046128

Livingstone, S., Ólafsson, K., & Pothong, K. (2023). Digital play on children's terms: A child rights approach to designing digital experiences. New Media & Society. 1–21. https://doi.org/10.1177/14614448231196579

Long, C. (2023, Sept 5). Children easily bypassing age verification online, putting them at risk of abuse, eSafety commissioner says. ABC News. https://www.abc.net.au/news/2023-09-05/children-bypassing-online-age-verification-at-risk-of-abuse/102813518

Luscombe, B. (2021, November 12). How Ryan Kaji became the most popular 10-year-old in the world. TIME. https://time.com/6116624/ryan-kaji-youtube/

Mac, R., & Silverman, C. (2021, March 19). Facebook is building an Instagram for kids under the age of 13. Buzzfeed News. https://www.buzzfeednews.com/article/ryanmac/facebook-instagram-for-children-under-13

Mackinnon, K., & Shade, L. R. (2020). "God only knows what it's doing to our children's brains": A closer look at internet addiction discourse. Jeunesse: Young People, Texts, Cultures, 12(1), 16–38. https://doi.org/10.1353/JEU.2020.0003

Markets and Markets (2022, July). EdTech and smart classrooms market. https://www.marketsandmarkets.com/Market-Reports/educational-technology-ed-tech-market-1066.html

Marsden, L., Moody, L., Nguyen, B., Tatam, L., Welland, L., & Third, A. (2022). Reimagining online safety education through the eyes of young people: Co-design workshops with young people to inform digital learning experiences. Young and Resilient Research Centre, Western Sydney University. https://doi.org/10.26183/3bz3-r451

Marsh, J. (2015). 'Unboxing' videos: Co-construction of the child as cyberflaneur. Discourse: Studies in the Cultural Politics of Education, 37(3), 369-380. https://doi.org/10.1080/01596306.2015.1041457

Marsh, J., Law, L., Lahmar, J., Yamada-Rice, D., Parry, B., Scott, F., Robinson, P., Nutbrown, B., Scholey, E., Baldi, P., McKeown, K., Swanson, A., & Bardill, R. (2019). Social media, television and children project report. University of Sheffield. https://www.sheffield.ac.uk/education/research/literacies-and-language/stac

Marwick, A. (2013). Status update: Celebrity, publicity, and branding in the social media age. Yale University Press.

Mavoa, J., Carter, M., & Gibbs, M. (2017). Children and Minecraft: A survey of children's digital play. New Media and Society. 20(9), 3097-3520. https://doi.org/10.1177/1461444817745320

Meta. (2021, October 28). Introducing Meta: A social technology company. https://about.fb.com/news/2021/10/facebook-company-is-now-meta/

Meta. (2023). Facebook community standards. https://transparency.fb.com/en-gb/policies/community-standards/

Meyrowitz, J. (2009). We liked to watch: Television as progenitor of the surveillance society. The Annals of the American Academy of Political and Social Science, 625(1), 32–48. https://doi.org/10.1177/0002716209339576

Microsoft. (1997, February 3). K-12 Schools make Microsoft Windows the #1 choice in education. Microsoft News. https://news.microsoft.com/1997/02/03/k-12-schools-make-microsoft-windows-the-1-choice-in-education/

Morozov, E. (2014). To save everything, click here: The folly of technological solutionism. INGRAM.

Mosseri, A. (2021, September 27). Pausing 'Instagram Kids' and building parental supervision tools. Instagram. https://about.instagram.com/blog/announcements/pausing-instagram-kids

Nixon, H. (2004). Fun and games are serious business. In J. Sefton-Green (Ed.), Digital diversions (pp. 19-43). Routledge. https://doi.org/10.4324/9780203214077

Notley, T., Chambers, S., Zhong, H.F., Park, S., Lee, J. and Dezuanni, M. (2023). News and young Australians in 2023: How children and teens access, perceive and are affected by news media. Western Sydney University.

Ofcom. (2020). Children and parents: Media use and attitudes report 2019. https://www.ofcom.org.uk/__data/assets/pdf_file/0024/134907/Children-and-Parents-Media-Use-and-Attitudes-2018.pdf

Office of the Attorney General. (2023). California consumer privacy act (CCPA). State of California Department of Justice. https://oag.ca.gov/privacy/ccpa

Office of the Australian Information Commissioner. (2023). Children and young people. Australian Government. https://www.oaic.gov.au/privacy/your-privacy-rights/more-privacy-rights/children-and-young-people

Office of the High Commissioner for Human Rights. (1989). Convention on the Rights of the Child. United Nations. https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child

Office of the High Commissioner for Human Rights. (2003). General comment No. 5 (2003): General measures of implementation of the convention on the rights of the child. United Nations. https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CRC%2FGC%2F2003%2F5&Lang=en

Office of the High Commissioner for Human Rights. (2021). General comment No. 25 (2021) on children's rights in relation to the digital environment. United Nations. https://www.ohchr.org/en/documents/general-comments-and-recommendations/general-comment-no-25-2021-childrens-rights-relation

Organisation for Economic Co-operation and Development. (2018). Bridging the digital gender divide: Include, upskill, innovate. https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf

Reddit. (2023). Reddit content policy. https://www.redditinc.com/policies/content-policy

Palmer, P. (1986). The lively audience: A study of children around the TV set. Allen & Unwin.

Pangrazio, L., & Mavoa, J. (2023). Studying the datafication of Australian childhoods: learning from a survey of digital technologies in homes with young children. Media International Australia, (OnlineFirst). https://doi.org/10.1177/1329878X231162386

Parkin, S. (2022, January 9). The trouble with Roblox, the video game empire built on child labour. The Guardian. https://www.theguardian.com/games/2022/jan/09/the-trouble-with-roblox-the-video-game-empire-built-on-child-labour

People Make Games (2022). Investigation: How Roblox is exploiting young game developers [Video]. YouTube. https://www.youtube.com/watch?v=_gXlauRB1EQ

Perez, S. (2023, February 16). In a boost for the 'metaverse,' Roblox stock pops 25% after strong Q4 earnings. TechCrunch. https://techcrunch.com/2023/02/15/in-a-boost-for-the-metaverse-roblox-stock-pops-25-after-strong-q4-earnings/

Personal Data Protection Commission. (2021). PDPA overview. Government of Singapore. https://www.pdpc.gov.sg/overview-of-pdpa/the-legislation/personal-data-protection-act

Personal Information Protection Commission Japan. (2023). Personal information protection commission – topics. Government of Japan. https://www.ppc.go.jp/en/

Potter, A., & Lotz, D. (2021). The first stage of Australia's digital transition and its implications for Australian television drama. Media International Australia, 182(1), 95-110. https://doi.org/10.1177/1329878X211030370

Potter, A., & Steemers, J. (2017). Children's television in transition: Policies, platforms and production. Media International Australia, 163(1), 6-12. https://doi.org/10.1177/1329878X17693936

Queensland Audit Office. (2021). Enabling digital learning. https://www.qao.qld.gov.au/reports-resources/reports-parliament/enabling-digital-learning

Riles, J. M., Pilny, A., & Tewksbury, D. (2018). Media fragmentation in the context of bounded social networks: How far can it go? New Media & Society, 20(4) 1415–1432. https://doi.org/10.1177/1461444817696242

Rodriguez, A., & Levido, A. (2023). My little influencer: A toy ringlight as proxy to media practices and technopanics. M/C Journal. 26(2). https://doi.org/10.5204/mcj.2948

Roose, K. (2023, February 17). Why a conversation with Bing's chatbot left me deeply unsettled. The New York Times. https://www.nytimes.com/2023/02/16/technology/bing-chatbot-microsoft-chatgpt.html

Rousseau, J. (2021, August 20). Roblox business model criticized as exploiting children. Games Industry. https://www.gamesindustry.biz/roblox-business-model-criticized-as-exploiting-children

Ruby, D. (2023, July 31). Roblox statistics 2023 — (users, revenue & trends). Demand Sage. https://www.demandsage.com/how-many-people-play-roblox/.

Samios, Z. (2023, April 16). How Netflix, Amazon may be forced to make more Australian programs. The Sydney Morning Herald. https://www.smh.com.au/business/companies/how-netflix-amazon-may-be-forced-to-make-more-australian-programs-20230416-p5d0so.html

Sefton-Green, J., Dezuanni, M., & Pangrazio, L. (2022). A research agenda to examine the political economy of digital childhood. Digital Child Working Paper 2022-06. ARC Centre of Excellence for the Digital Child.

Social Blade. (2023). Top 100 most viewed YouTube channels (sorted by video views). https://socialblade.com/youtube/top/100/mostviewed

Statista. (2023). Countries with the highest internet penetration rate as of January

2023 [Dataset]. https://www.statista.com/statistics/227082/countries-with-the-highest-internet-penetration-rate/

Steemers, J. (2010). Creating preschool television: A story of commerce, creativity and curriculum. Palgrave Macmillan.

Swedish Authority for Privacy Protection. (2021). The rights of children and young people on digital platforms. The Ombudsman for Children in Sweden and The Swedish Media Council. https://www.imy.se/globalassets/dokument/rapporter/the-rights-of-children-and-young-people-on-digital-platforms_accessible.pdf

Taylor, C. (2003). Modern social imaginaries. Duke University Press.

Thomas, J., McCosker, A., Parkinson, S., Hegarty, K., Featherstone, D., Kennedy, J., Holcombe-James, I., Ormond-Parker, L., & Ganley, L. (2023). Measuring Australia's digital divide: Australian digital inclusion index: 2023. ARC Centre of Excellence for Automated Decision-Making and Society, RMIT University, Swinburne University of Technology, and Telstra. https://doi.org/10.25916/528s-ny91

Tidy, J. (2020, May 15). Disney forces explicit Club Penguin clones offline. BBC News. https://www.bbc.com/news/technology-52677039

TikTok. (2023). Community guidelines – overview. https://www.tiktok.com/community-guidelines/en/

Tolbert, A. & Drogos, K. (2019). Tweens wishful identification and parasocial relationships with YouTubers. Frontiers in Psychology, 10, Article 2781. https://www.frontiersin.org/articles/10.3389/fpsyg.2019.02781/full

Truth in Advertising. (2023). Roblox. https://truthinadvertising.org/brands/roblox/

Tynan-Wood, C. (2023, January 16). iPads in the classroom: the promise and the problems. Great Schools. https://www.greatschools.org/gk/articles/ipad-technology-in-the-classroom/

United States Federal Trade Commission. (2013). Children's online privacy protection rule ('COPPA"). https://www.ftc.gov/legal-library/browse/rules/childrens-online-privacy-protection-rule-coppa

United States Federal Trade Commission. (2019). Dissenting statement of commissioner Rohit Chopra: In the matter of Google LLC and YouTube LLC. Office of Commissioner Rohit Chopra. https://www.ftc.gov/system/files/documents/public_statements/1542957/chopra_google_youtube_dissent.pdf

United States Federal Trade Commission. (2020). Comply with COPPA: Frequently asked questions. https://www.ftc.gov/business-guidance/resources/complying-coppa-frequently-asked-questions

United States Federal Trade Commission. (2022, December 19). Fortnite video game maker Epic Games to pay more than half a billion dollars over FTC allegations of privacy violations and unwanted charges. https://www.ftc.gov/news-events/news/press-releases/2022/12/fortnite-video-game-maker-epic-games-pay-more-half-billion-dollars-over-ftc-allegations

United States Federal Trade Commission. (2023, March 14). FTC finalizes order requiring Fortnite maker Epic Games to pay $245 million for tricking users into making unwanted charges. https://www.ftc.gov/news-events/news/press-releases/2023/03/ftc-finalizes-order-requiring-fortnite-maker-epic-games-pay-245-million-tricking-users-making

University of Leiden & the Waag Organisation. (2021). Code for children's

rights. Ministry of the Interior and Kingdom Relations. https://codevoorkinderrechten.nl/wp-content/uploads/2021/07/Code-voor-Kinderrechten-Wordversie_EN.pdf

Vamvakitis, J. (2019, January 22). Around the world and back with Google for Education. The Keyword. https://blog.google/outreach-initiatives/education/around-the-world-and-back/

van Dijck, J., Poell, T., & de Waal, M. (2018). The platform society. Oxford University Press.

Vissenberg, J., d'Haenens, L., & Livingstone, S. (2022). Digital literacy and online resilience as facilitators of young people's wellbeing? A systematic review. European Psychologist, 27(2), 76-85. https://doi.org/10.1027/1016-9040/a000478

Walczer, J. W. (2021). Un-boxing toy unboxing: Analysing YouTube's toy unboxing creator culture [Doctoral dissertation, Queensland University of Technology]. QUT ePrints. https://eprints.qut.edu.au/210189/

Watters, A. (2015, February 25). How Steve Jobs brought the Apple II to the classroom. Hack Education. https://hackeducation.com/2015/02/25/kids-cant-wait-apple

Willett, R., Richards, C., Marsh, J., Burn, A., & Bishop, J. C. (2013). Children, media and playground cultures ethnographic studies of school playtimes. Palgrave Macmillan UK. https://doi.org/10.1057/9781137318077

Woollaston, V. (2014, March 5). Joseph Garrett gives up job to upload Minecraft tips on Youtube channel. Mail Online. https://www.dailymail.co.uk/sciencetech/article-2573860/Making-money-MINECRAFT-Barman-gives-job-play-game-professionally-Youtube-channel-gets-hits-One-Direction-Justin-Bieber.html

Yang, A. (2023, August 15). Illinois passed a law to protect child influencers. Advocates are cautiously optimistic more states will follow. NBC News. https://www.nbcnews.com/news/child-influencers-law-illinois-reaction-rcna99831

Yelenevych, A. (2022, December 26). The future of EdTech. Forbes. https://www.forbes.com/sites/forbesbusinesscouncil/2022/12/26/the-future-of-edtech/?sh=304f06d16c2f

YouTube Help. (2023). Best practices for kids & family content. Google Support. https://support.google.com/youtube/answer/10774223?hl=en&p=best_practices_kids&visit_id=637607722746561748-1462795498&rd=1

Zigazoo. (2023a). Our impact. https://zigazoo.com/teens/our-impact/

Zigazoo. (2023b). About us. https://zigazoo.com/teens/about-us/

Zuboff, S. (2020). The age of surveillance capitalism: The fight for a human future at the new frontier of power. PublicAffairs.

Appendix: Methodology

This document was produced through a series of research activities. The project was first developed through a sequence of workshops with key Chief Investigators and Research Fellows at the Australian Research Council Centre of Excellence for Digital Child. These workshops involved exploratory exercises to map out the terrain of the Children's Internet. This led to the development of the six lenses presented in this document—namely, access to products and services, imaginaries, entertainment, education and learning, regulation, and digital participation.

Following on from this academic consultation we then engaged in targeted recruitment to seek out expert industry perspectives around these issues. Under QUT Ethics Approval LR 2022-5328-11831, we conducted 10 online interviews that lasted about an hour each with leading experts regarding children's digital products and services. All participants (except one who wished to remain anonymous) consented to having their quotes attributed to their name. These experts include:

Children's Media Production

Cate McQuillan, creator and producer of *Get Grubby TV* and Emmy Award Winning *dirtgirlworld*. McQuillan and the *Get Grubby TV* produce digital resources for families and educators that encourage children to play outside and with nature.

Michael Carrington, executive producer for *Carrington Media* and former head of children's & education ABC TV. Carrington commissioned the highly popular children's television show *Bluey* for ABCME.

Matt Deaner, CEO of *Screen Producers Australia*. *Screen Producers Australi*a is a national organisation that unites the screen industry to campaign for a healthy commercial environment.

Education & EdTech

Lauren Glina, founder of *A.gap.e*, a build your own computer kit. As a mum, an engineer and an educator, Glina is passionate about seeing kids have the same opportunities for fresh and engaging STEM education products and experiences.

Andrew Duval, founder of *Frankenstories*, a live multiplayer online writing game. Duval is one of the creators of Writelike.org, has a MA in Scriptwriting from Australian Film Television and Radio School, and is a two-time Bill & Melinda Gates Foundation grantee.

Adam Weber, founder of *TrueWell*, a wellbeing platform to monitor and enrich the wellbeing of staff and students.

Educational Technology Expert employed by a large international tech company, who wished to remain anonymous.

Content Regulation

Jenny Buckland, CEO of *Australian Children's Television Foundation* (ACTF). The ACTF is a national non-profit children's media production and policy hub and Buckland has extensive experience in the production, financing and international distribution of children's television programmes.

Game Studios

David Kleeman, senior vice president of global trends for Dubit which is a global studio that builds branded metaverse games. Kleeman has over 35 years experience in the children's media industry, having been the past president of the *American Center for Children and Media.*

Joey Egger, managing director at *DEPT®/FAMILY (APAC)*; Todd Hutchinson, creative director and Damian Fontana, executive producer at *Two Moos/DEPT®*—the family division of *Two Bulls/DEPT®* that partners with the world's biggest kids brands and startups to craft games and digital experiences for children.

These semi-structured interviews followed the same format and involved asking similar questions to each expert. This allowed us to understand the shared imaginaries, issues, and observations that each participant sees in their area of expertise.

Building on the workshops and semi-structured interviews we engaged in desk research throughout the project, to better understand the landscape and issues that comprise the Children's Internet. This involved reviews of relevant literature, referring to trade press and policy reports, observations at industry events (such as EduTech in Melbourne), and closely examining advertisements of commercial and educational digital products and services.

This final document was peer reviewed by members of the Digital Child 'Policy' Working Paper editorial team.

Author Bios

Professor Michael Dezuanni is a Chief Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at Queensland University of Technology.

Dr Aleesha Rodriguez is a Research Fellow at the Australian Research Council Centre of Excellence for the Digital Child, at Queensland University of Technology.

Professor Julian Sefton-Green is a Chief Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at Deakin University.

Professor Tama Leaver is a Chief Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at Curtin University.

Dr Anna Bunn is an Associate Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at Curtin University.

Professor Anna Potter is an Associate Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at Queensland University of Technology.

Dr Rys Farthing is an Associate Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at Reset Australia.

Dr Aimee Hourigan is a research assistant at Queensland University of Technology.

Dr Luci Pangrazio is a Chief Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at Deakin University.

Dr Kate Mannell is a Research Fellow at the Australian Research Council Centre of Excellence for the Digital Child, at Deakin University.

Dr Kristy Corser is a Research Fellow at the Australian Research Council Centre of Excellence for the Digital Child, at Queensland University of Technology.

Senior Professor Sue Bennett is a Chief Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at University of Wollongong.

Dr Amanda Levido is a Research Fellow at the Australian Research Council Centre of Excellence for the Digital Child, at Queensland University of Technology.

Dr Xinyu 'Andy' Zhao is a Research Fellow at the Australian Research Council Centre of Excellence for the Digital Child, at Deakin University.

Dr Rebecca Ng is a Research Fellow at the Australian Research Council Centre of Excellence for the Digital Child, at the University of Wollongong.

Dr Guy Healy is a Marie Curie Fellow at Vrije Universiteit Brussels.

Professor Rebekah Willett is a Partner Investigator at the Australian Research Council Centre of Excellence for the Digital Child, at University of Wisconsin-Madison.

A MESSAGE FROM PROFESSOR SUSAN DANBY, CENTRE DIRECTOR

In 2021, the Australian Research Council (ARC) funded a Centre of Excellence devoted to studying and researching 'the digital child'. The focus of this Centre is on very young children from birth to age 8, and describes and examines their everyday lives with and through digital technologies, their learning and their health in the family, and various kinds of kindergarten, childcare and early primary education experiences.

The Centre brings together six universities across Australia, as well as partner investigators from North America, Asia and Europe and a range of public bodies and civil society stakeholders, to focus on a holistic understanding of what it might mean to 'grow up digital' today.

The Digital Child Working Paper Series reports on our work in progress. There are five series of papers aimed at different audiences:

A **'how to'** series offers instructional papers aimed at early career researchers or those new to the principles and practices of structured review.

A **'discussion'** series consisting of discussion papers aimed at the scholarly community, raising larger conceptual challenges faced by researchers at the Centre and drawing on forms of literature review.

A **'reviews'** series consisting of scoping reviews, literature reviews and systematic reviews, all addressing specific research questions particular to any of the programme disciplines in the Centre.

A **'methods and methodologies'** series consisting of digital research capacity building resource-rich discussion papers, offering more technical support for the research community and allied scholarship. These are more focused on methods and methodologies.

A **'policy'** series consisting of more public facing, policy-oriented papers produced for stakeholder engagement.

Each of the working papers has been authored by members of the Centre and has been subject to review as explained in each paper. The arguments in each paper represent the view of the authors.

We hope that readers find each of these papers stimulating and generative and that all sections of society can draw on the insights, arguments and ideas within the papers to create healthy, educated and connected futures for all and every child.

Distinguished Professor Susan Danby

Director, ARC Centre of Excellence for the Digital Child

October 2023

Australian Research Council
Centre of Excellence for the Digital Child
149 Victoria Park Rd, Kelvin Grove QLD 4059
Queensland University of Technology, Kelvin Grove QLD 4059
info@digitalchild.org.au
www.digitalchild.org.au