

Is technology making our kids sad and anxious? It's complicated...

New findings from the Future Proofing Study presented to the Child and Adolescent Mental Health Conference (March, 2024)

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Acknowledgement of Country

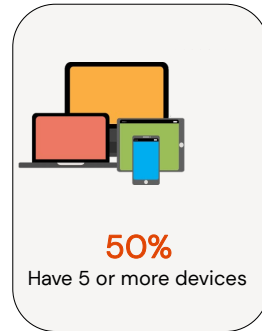
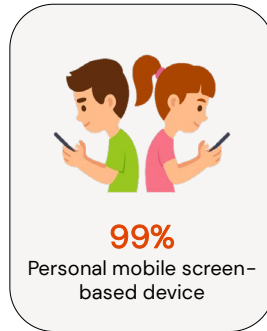
I acknowledge the Traditional Owners and Custodians of the land on which we meet and the Aboriginal and Torres Strait Islander people participating today.

Overview

1. Background: and the Future Proofing Study
2. How are young people using screens?
3. Is there an association between screens and mental health?
4. Unpacking the nuance in the debate: are screens helpful or harmful?
5. How can we support adolescent mental health in a digital world?



Digital technology and young people



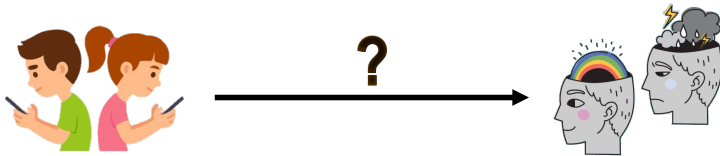
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Undoubtedly, **the digital revolution has permeated all aspects of the lives of every one of us**, altering how we think, work, and interact, adolescents more than most. In advanced and emerging economies, **Generation Z (those born after 1995) are 'digital natives'**, the most connected age group of all time. Approximately 99% of these young people in Australia have a personal, mobile screen-based device, and 50% have 5 or more devices. They cannot conceive of a time before the world wide web and the mobile phone.

And this digitalisation of our world has occurred **in parallel with a range of other global megatrends** such as climate change awareness, rapid urbanisation, housing insecurity, and major shifts in the economic and geopolitical landscape – all intensified by a global pandemic.

And, as we know, **adolescents are developmentally highly susceptible to the opportunities and risks of new technologies**: the development of socio-affective brain circuits can increase sensitivity to social information, impulsiveness towards rewards, and well as a preoccupation with peer evaluation. This is the stage in life when well-being shows the most fluctuations, in which risk-taking is at its peak, and in which mental disorders such as depression typically emerge.

Digital technology and young people



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So, naturally, there are a lot of questions around how digital technology impacts young people's mental health and wellbeing.

There is also substantial stakeholder interest from parents, teachers, policy makers and young people themselves to better understand the relationship between digital technology and mental health and wellbeing. For example, the New South Wales state government recently committed \$2.5 million towards better understanding problematic screen use in young people and strategies to promote healthy screen use.

The Future Proofing Study

Design

- Longitudinal cohort study
- Followed up annually from Year 8 to 'Year 13'

Participants

- 6,388 students
- 134 Australian secondary schools

Data collection

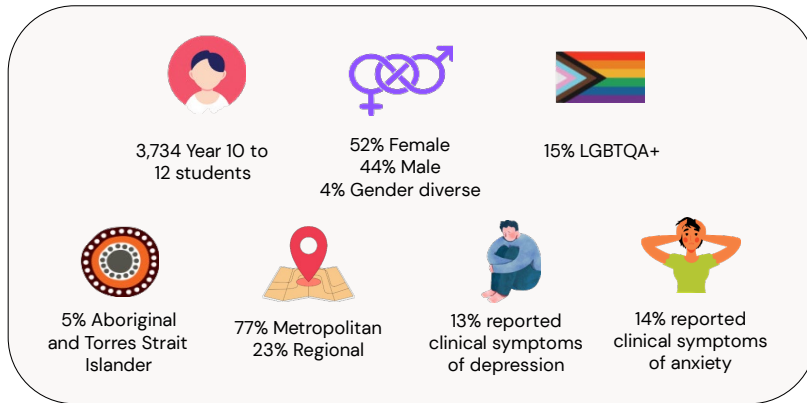
- Comprehensive self-report questionnaires collected from 2019 to 2026

The Future Proofing Study, conducted by the Black Dog Institute, is the largest and most comprehensive longitudinal study of adolescent mental health in Australia.

It involves thousands of the same group of students completing annual, online surveys about their mental health and well-being for 6 years during their adolescence. This data collection process is due to be completed in 2026.

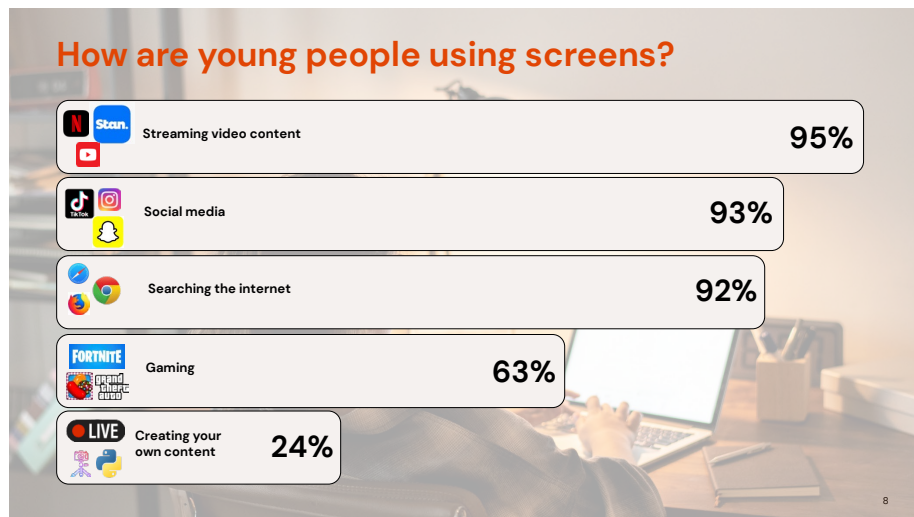
We regularly report back on our analysis and findings to decision-makers in society and to our various stakeholders.

Characteristics of students who provided data in 2023



The data presented here is from a sub sample of the study: it includes our participants who did a Future Proofing survey in 2023, that is, the students who were in years 10, 11 and 12. On the screen, you can see their demographics.

How are young people using screens?



Our participants reported that the most common types of technology that they are using are streaming services (that's watching Netflix, Stan or YouTube etc) followed closely by 93% engaging with social media on Instagram, TikTok and Snapchat.

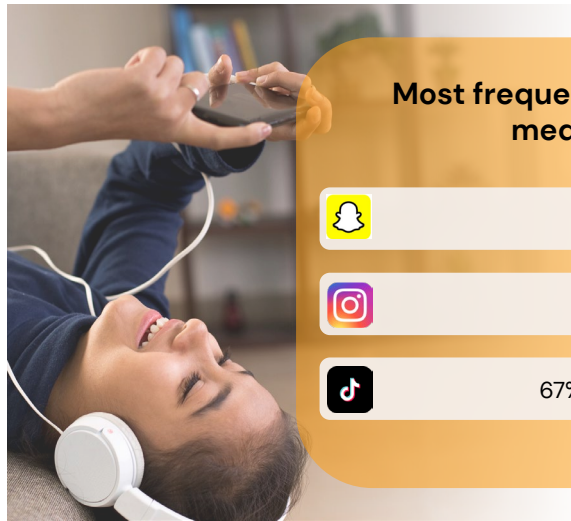
How long are young people spending on screens every day, outside of schoolwork?

3-4 hours on screens...

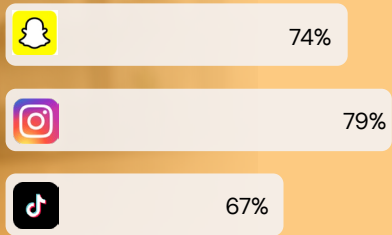
...2-3 of those hours on social media



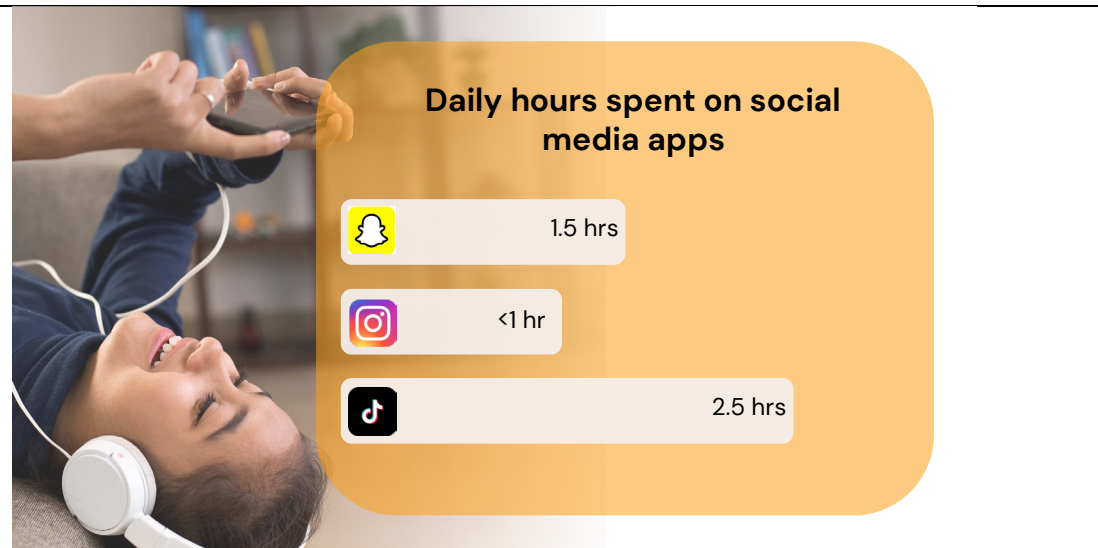
On average, our participants told us that outside of schoolwork they spend 3-4 hours a day on screens, with 2-3 hours of that on social media.



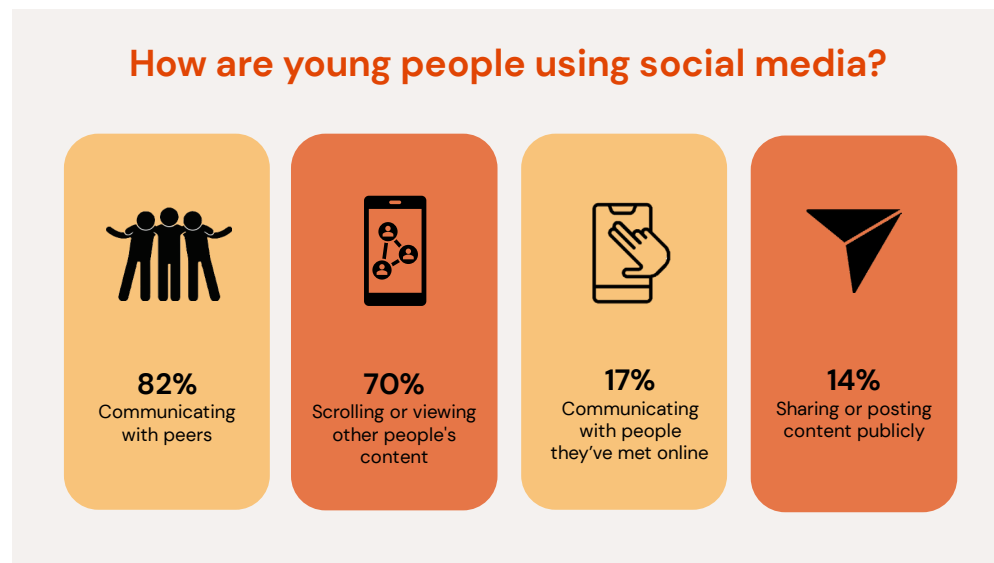
Most frequently used social media apps



Now let's look at which social media apps are the most popular: Instagram is the most frequently used app with 79% of all students using it once or more each week, followed by Snapchat at 74% and then TikTok at 67%.



And here we can see which app adolescents spend the longest amount of time on when they use it: on average, adolescents in Years 10-12 are spending 2 and a half hours on Tik Tok each day, compared to 1 and half hours on Snapchat, and 1 hour or less on Instagram.



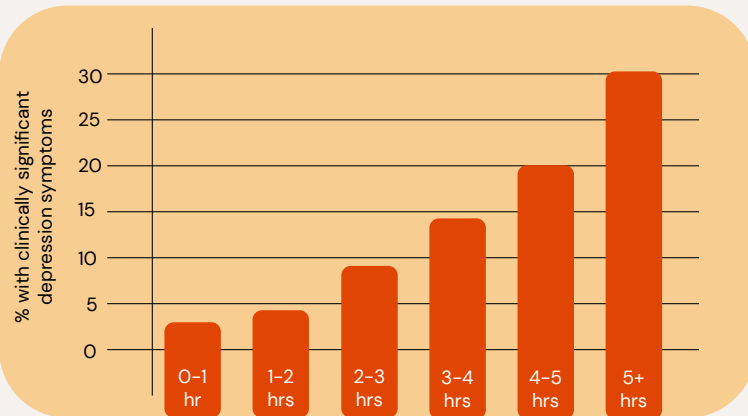
We also asked detailed questions about how young people are using social media in particular and learned that **82 % of students use social media to communicate with real-life peers**. International studies have repeatedly reported that online communications influence wellbeing positively if it is with existing 'real' friends.

For most adolescents, there is no longer a distinction between online relationships and offline relationships; there is now what Benvenuti et al (2023) describe as **'onlife' as their offline and online relationships merge into a dimension largely unfamiliar to prior generations**.

Is there an association between screen use and mental health?



Screen time and depression



As we can see, this cross-sectional data from our participants reveals a clear correlational link between increased screen time and higher likelihood of young teens meeting clinical levels of depression. The graphs for anxiety and psychological distress look very similar.

However, correlation is not causation. Although research has not established a definite causal relationship between time of social media use and mental health issues, several studies indicate a bidirectional influence over time. This means time of screen use and mental health impact each other: feeling low can lead to increased screen time, which might further affect mood due to reduced physical and social engagement, as well as exposure to negative online content like body image comparisons or cyberbullying. **So, what we know for sure so far is that this relationship is extremely complicated.**

Social media apps and mental health symptoms



Higher daily hours on **TikTok** was significantly associated with greater:

- depression
- anxiety
- insomnia
- disordered eating



Higher daily hours on **Instagram** was significantly associated with greater:

- depression
- anxiety



Higher daily hours on **Snapchat** was **not significantly associated** with any of the mental health symptoms examined

All analyses controlled for gender and socioeconomic background

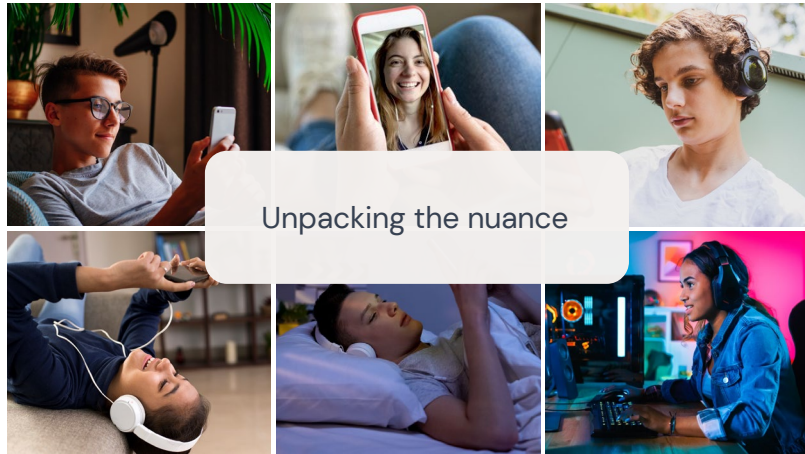
We analysed the relationship between social media use and adolescent mental health in order to determine whether spending more time on the most popular apps was differently associated with teens' mental health.

As you can see, we found that higher daily hours on TikTok was significantly associated with greater depression, anxiety, insomnia and disordered eating. Higher daily hours on Instagram was significantly associated with greater depression and anxiety. Higher daily hours on Snapchat was not significantly associated with any of the mental health symptoms examined (not surprising as it is primarily a confidential 'texting' app).

Comparing TikTok to Instagram in terms of their influence on teen mental health unveils unique factors shaping their respective impacts. TikTok's algorithm-driven content delivery via reels keeps users engrossed, potentially leading to prolonged exposure to content that may negatively affect mental well-being.

Meanwhile, Instagram's focus on curated lifestyles and appearance ideals can foster feelings of inadequacy, although TikTok's very attractive, dynamic video format may intensify such comparisons given how easily engaged young people are by video content.

However, again correlation is not causation. The relationship between the use of social media apps and mental health is complicated and nuanced.



Unpacking the nuance

How screen use can exacerbate mental health symptoms

- Social comparisons
- Exposure to harmful, age-inappropriate, or distressing content
- Time spent on screens displaces other rewarding and important activities

“Other people on my TikTok always look so good in clothes but when I wear them it looks so bad. I hate the way my body looks.”

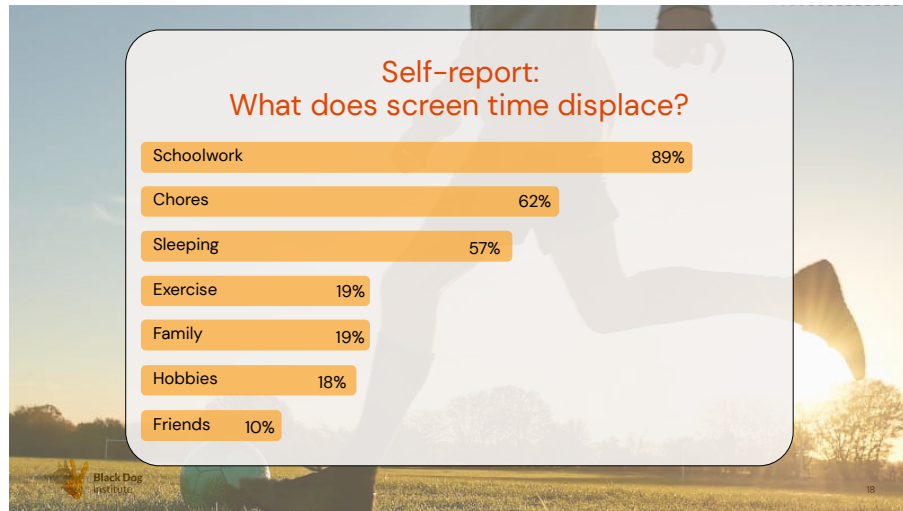


When we consider how **screen use can exacerbate mental health symptoms for teens**, research shows that several factors come into play.

Firstly, upward social comparisons (comparing oneself to others who are perceived to be superior in a particular way) and FOMO are highly problematic for teens struggling with well-being issues ranging from body image to lifestyle.

Secondly, exposure to age-inappropriate or explicit content, including sexual content and harassment, can escalate feelings of distress or discomfort. Algorithms on platforms like TikTok have been shown to increase exposure to mentally harmful content related to disordered eating, self-harm, or suicidality.

Thirdly, the amount of time spent on screens also matters because of displacement behaviour, with TikTok being particularly addictive and often used for extended periods, especially among depressed individuals, for example, we found that 22% of depressed students are using TikTok 5+ hours, vs only 8% of non-depressed students.



This graphic depicts students' self-reported information about their displacement behaviour.

As we can see, sleeping and exercise are significantly displaced, and we know that **insufficient sleep and exercise significantly increases the risk of depression and/or anxiety.**

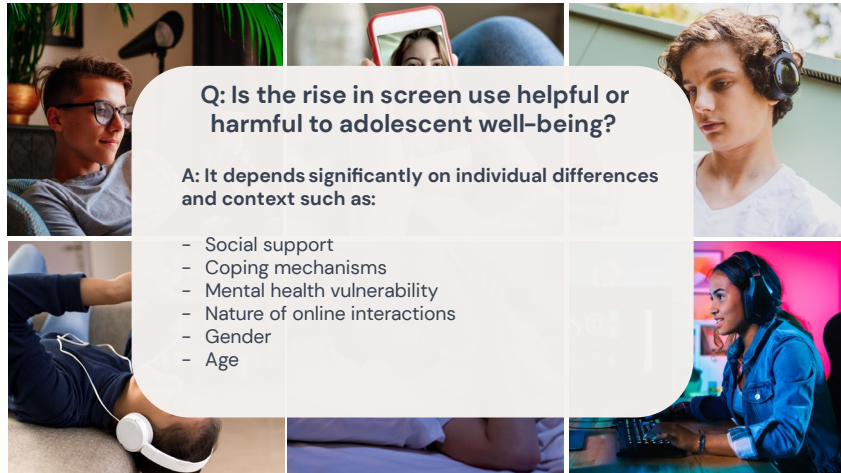
Additionally, **decreased engagement with family, hobbies, and friends can lead to social isolation** and a lack of emotional support networks, which are additional risks for mental illness.

How screen use can support mental health

- Online peer connection
- Emotion regulation
- Access to online information, communities, and support

"It's exhausting being in my brain... sometimes I like being by myself and scrolling for a bit. It helps me relax."

However, **research has shown that for some young people screens can support their mood when they're feeling low.** **Firstly**, if they are experiencing poor mental health, they might have trouble engaging with friends face to face and instead prefer interacting online. As a student told us in a focus group: "I find it hard to connect with kids at school because I don't have a lot in common with them, but I have an awesome group of online friends who I game with, and that's one of the happiest part of my day". **Secondly**, many young people report using screen activities to regulate their emotions, as a coping mechanism to distract themselves from negative thoughts or feelings. As one student said "It's exhausting being in my brain. Sometimes I like just being by myself and scrolling for a bit. It helps me relax." And, **thirdly**, as we all know, the internet offers excellent endless opportunities to learn, connect and find support.



Q: Is the rise in screen use helpful or harmful to adolescent well-being?

A: It depends significantly on individual differences and context such as:

- Social support
- Coping mechanisms
- Mental health vulnerability
- Nature of online interactions
- Gender
- Age

We have recently begun to analyse the **longitudinal relationship between hours of screen time and depression and anxiety in young adolescents** and, as with other longitudinal studies, we are also finding that **very preliminary longitudinal data suggests that other factors such as gender, socioeconomic status, age, and pre-existing mental health conditions, may be more influential in determining long-term mental health outcomes than screen time.**

So, when we ask the question Is the rise in screen use helpful or harmful to adolescent well-being, the answer appears to be: **IT DEPENDS on individual differences and context.** The relationship between screen use and adolescent mental health is complex and multifaceted, and changing all the time as technology morphs and shifts.

Based on our current findings, in order to mitigate the harmful effects of screens, we need to continue to work with young people to bolster comprehensive social, physical and emotional resources, offering extended opportunities for them to enrich their lives non-technologically.

And we also need to continue to provide targeted support and interventions to vulnerable young people with heightened risk factors for mental illness, including being female, sexuality or gender diverse, having limited social support systems and coping mechanisms, having pre-existing mental health conditions, and living in under-resourced situations.

A vital addition: Digital literacy from K - 12



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And, in the education context, we need **age-appropriate digital literacy in the curriculum from K-12**

The current approach to adolescents and tech is tantamount to throwing them into the sea, or at best, the deep end of the swimming pool - without having taught them to swim, operating on the assumption that young people spontaneously and naturally 'pick up' the digital skills that they need to survive and thrive in the digital world – in fact, **research shows that most young people lack basic and complex digital skills.**

Fortunately, there are task teams (educators, curriculum writers and others) who are currently developing materials for a new curricula to change this, for example, there are task teams drafting new PDHPE material on digital literacy for primary school students (Years 1-6) and for students in Years 7-10. Unfortunately, this is only due to be implemented in schools in 2026 or 2027. In the meantime, there are a lot of materials available online.

So, what should this digital education look like?

Dimensions of digital skills for the school curricula

Table 1. The four dimensions of digital skills.

Dimension	Description
Technical and operational skills ('Tech')	The ability to manage and operate ICTs and the technical affordances of devices, platforms and apps, from 'button' knowledge to settings management to programming
Information navigation and processing skills ('Info')	The ability to find, select and critically evaluate digital sources of information
Communication and interaction skills ('Comm')	The ability to use different digital media and technological features to interact with others and build networks as well as to critically evaluate the impact of interpersonal mediated communication and interactions on others
Content creation and production skills ('Create')	The ability to create (quality) digital content and understand how it is produced and published and how it generates impact



Black Dog
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Livingstone, S., Mascheroni, G., & Stoilova, M. (2023). *The outcomes of gaining digital skills for young people's lives and wellbeing: A systematic evidence review.*

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There are at least four dimensions of these essential digital skills:

1. Technical and operational skills

2. Information navigation and processing skills enabling students to discern between credible and unreliable online information amidst the prevalence of misinformation and fake news, fostering a sense of digital resilience and reducing potential anxiety or stress caused by misleading content.

3. Communication and interaction skills enabling students to understand that social media is not just a service that they use but a commercialised transactional relationship.

Understanding the persuasive techniques employed by tech giants through algorithms built into social media apps and AI will allow students to develop a healthy skepticism towards online content, making more informed decisions about their online interactions and consumption habits, ultimately contributing to their overall digital well-being.

4. Content creation and production skills will allow students to leverage digital tools and resources to express themselves, collaborate effectively, and engage more deeply with the curriculum across different subjects and disciplines, potentially boosting their overall sense of fulfillment and satisfaction with their educational experiences.

A place to start



The screenshot shows the website for Children and Screens, an Institute of Digital Media and Child Development. The page features a navigation menu with options like 'Learn and Explore', 'Events', 'Research Grants', 'Policy', 'Newsroom', and 'About'. The main content area is titled 'Algorithms 101: Youth and AI-Driven Tech' and includes a sub-header 'ASK THE EXPERTS — WEBINARS'. Below the title, there is a short paragraph: 'What can families do about the growing influence of algorithmically-delivered content on youth's development, preferences, and minds?'. The Black Dog Institute logo is visible in the bottom left corner of the screenshot.



This is an example of a very recent podcast (with a transcript) where panelists with expertise in computer science, human-computer learning, communications, and mental health surveyed the current state of data-driven media online, how algorithms work to increase and solidify bias, and what we need to know to develop essential skills to cope with the growing influence of algorithmically-delivered content on youth's development, preferences, and minds.

<https://www.childrenandscreens.org/learn-explore/research/algorithms-101-youth-and-ai-driven-tech/?fbclid=IwAR1k7LVi1emRkR5G1ZMP5dEnSL-zBdzPlU6PWjia95cjSsomJQePPMvldQM>

And this podcast of experts from Orygen (Australia) and Kings College in London talking about screens and mental health is well worth a listen:

<https://www.abc.net.au/listen/programs/bigideas/youth-mental-health-orygen-generations-/103551712>

Much more Research and Development is needed, of course, if digital literacy is going to be embedded, age appropriately, and comprehensively into the curriculum every year from K-12 so that we can enable young people to become active, intentional and reflexive navigators of their complex, social and digital worlds. **This development of digital agency will undoubtedly impact positively on adolescent mental health and well-being.**

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We are hugely grateful to the students, schools, families and volunteers who contribute to this research.



Thank you for listening/reading today and a very big shout out to the students, school staff, families and our volunteers who contribute every year for six years to the Future Proofing research.

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