



# Research Synopsis

## Digital Climate Literacy

Publications Spanning 2018- 2025



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# **Digital Climate Literacy and Its Impact on Youth When Navigating Misinformation and Eco-Anxiety Synopsis**

## Summary of Key findings

In today's digital world, youth increasingly turn to online platforms for information about climate change and environmental issues. The primary sources they turn to are social media, websites, and apps, which allow them to access news, take part in activism, and form their understandings of the climate crisis present today. Though these platforms offer a great amount of knowledge about climate change and climate-related issues, they also pose a significant challenge for youth: distinguishing between credible and misleading information. This phenomenon, called misinformation, has raised concerns about its potential to worsen psychological distress, such as eco-anxiety, among young people.

This literature review explores the purpose of digital climate literacy in helping youth navigate the complicated digital world of climate change information. It will examine how youth use digital tools, the challenges they face when trying to identify trustworthy sources, and the psychological effects of being exposed to climate misinformation. The review also takes into account the importance of critical digital literacy skills in promoting accurate climate awareness and reducing the negative consequences of misinformation on mental health, especially when in the context of eco-anxiety. Through an examination of empirical studies, systematic reviews, and grey literature, this review is going to explain the necessary skills and strategies that can enable young people to interact with climate change information in a responsible and productive manner.

To start, young people actively participate in creating and reacting to climate content rather than just consuming it. Smith, Beach, and Shen (2021) explain how students understand the climate crisis and gain a sense of "agency" through "digital multimodal narratives" like storytelling and videos. These serve as tools for both internal and external communication. Similarly, Beach and Smith (2024) show how media made by youth like digital art, social media posts, and online campaigns, serve as opportunities for community building and civic engagement that can help fight feelings of powerlessness and eco-anxiety.

Digital tools are also being used in formal education settings to improve critical thinking and climate literacy. According to Castek and Dwyer (2018), sixth-grade students who worked on digital literacy projects developed transferable abilities and a better grasp of the differences between weather and climate. Similarly, interactive games like *CO2peration* have been shown to also improve students' comprehension of greenhouse gases and related climate science (Harker-Schuch et al., 2020). According to these studies, learning settings that include technology can promote critical engagement and information acquisition.

Nevertheless, there are many disadvantages to digital access in addition to its advantages. The Conversation (2025) claims that false information on climate change is widespread on websites like YouTube and TikTok and is predicted to get worse as AI-generated material becomes more prevalent. It can be challenging for young people to distinguish this false information because it frequently passes for humour, opinion, or pseudo-science. According to Beach and Smith (2024), exposure to these contradictory or fear-based messages is not only confusing, but it is also associated with elevated levels of eco-anxiety.

Grey literature also supports the idea that critical media skills are essential in today's information ecosystem. In order to help young people in evaluating the accuracy and truthfulness of climate information, the Institute for Development Impact (2025) stresses the importance of easily accessible, well-designed digital tools such as apps, websites, and mobile media, as well as educational support. A real-world example of this can be found in WACC Global (2025), which describes how university students were able to better navigate climate misinformation after learning how to evaluate bias, challenge sources, and consider their emotional responses to what they read online. The work stresses that youth should not only assess digital information but also critically examine the sources that produce and distribute it. Through framing, visual language, and messaging intent, young people can become more aware of false information and the framing of the climate crisis through various sources. These crucial skills help in changing fear into informed decision-making.

## Knowledge Synthesis

### **1. Smith, B., & Beach, R. (2023). *Youth Created Media on the Climate Crisis*.**

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Youth today are increasingly utilizing digital platforms such as TikTok, Instagram, YouTube, and Twitter to engage with climate change discourse, activism, and media production (Smith & Beach, 2023). These platforms serve not only as information sources but as areas for youth to create content that challenges dominant narratives surrounding climate change, sustainability, and environmental justice (Smith & Beach, 2023). Through digital storytelling, visual media, music, and art, youth are able to represent the urgency of environmental crises and advocate for systemic change, offering counter-narratives to the limited coverage typically provided by traditional media (Smith & Beach, 2023). The research highlights how digital spaces foster collective youth agency, allowing young people to critique existing political and economic structures while envisioning more sustainable futures (Smith & Beach, 2023). Initiatives such as the Fridays for Future movement demonstrate how digital tools can amplify youth activism at a global scale, enabling widespread participation despite geographic barriers (Smith & Beach, 2023).

Importantly, the use of digital tools also builds critical media literacy skills, empowering youth to recognize and battle misinformation while promoting public understanding rooted in a scientific consensus (Smith & Beach, 2023). However, Smith and Beach (2023) caution that

youth-led media activism often occurs without proper institutional support, leaving young people responsible for developing their own frameworks to evaluate information and produce credible content. The research also identifies that youth-generated media often confronts dominant ideologies—such as consumerism and economic growth models—that contribute to ecological degradation (Smith & Beach, 2023). By producing visual narratives that show environmental phenomena like floods, droughts, and wildfires, youth not only raise awareness but also demand systemic change from audiences and institutions alike (Smith & Beach, 2023). In this way, digital media production among youth is not only a tool for information dissemination but it is also a critical practice for building collective ecological consciousness and resilience in the face of climate crises (Smith & Beach, 2023).

**2. Smith, B., Beach, R., & Shen, J. (2021). Fostering Student Activism About the Climate Crisis Through Digital Multimodal Narratives. *Journal of Sustainability Education*. [https://www.susted.com/wordpress/content/fostering-student-activism-about-the-climate-crisis-through-digital-multimodal-narratives\\_2021\\_08/](https://www.susted.com/wordpress/content/fostering-student-activism-about-the-climate-crisis-through-digital-multimodal-narratives_2021_08/)**

Building upon earlier findings, Smith, Beach, and Shen (2021) further explore how youth actively use digital multimodal storytelling to engage with the climate crisis. Their research demonstrates that when students create narratives combining video, visuals, text, animation, and sound, they not only communicate urgent environmental issues but also develop a sense of personal and collective agency (Smith, Beach, & Shen, 2021). Through projects such as *Project Imagine the Future* (Project IF), youth participants constructed science fiction-inspired stories that tackled localized climate issues, including flooding, sea-level rise, and superstorms (Smith, Beach, & Shen, 2021). These projects allowed students to blend scientific understanding with creative expression, illustrating both the current impacts of climate change and imagined solutions for the future. The emphasis on "eventness"—the portrayal of climate crises as extraordinary disruptions to ecological norms—enhanced students' emotional connection to environmental challenges and empowered them to frame the climate crisis as a moral imperative for action (Smith, Beach, & Shen, 2021). By integrating popular culture references, personal identity, and real-world scientific evidence into their narratives, youth not only deepened their knowledge of climate science but also positioned themselves as communicators capable of influencing public opinion (Smith, Beach, & Shen, 2021).

The study also highlights the critical role of media literacy practices—especially “immersion,” “performance,” and “spreadability”—in the effectiveness of youth-created narratives (Smith, Beach, & Shen, 2021). Students used immersive techniques, such as animation and interactive storytelling, to create emotional resonance with audiences, while performance strategies like video editing and sound design enhanced the rhetorical impact of their messages (Smith, Beach, & Shen, 2021). The “spreadability” of these narratives, supported by digital platforms such as Pixton and iKOS, allowed students to reach broader audiences beyond their classrooms, including participation in sci-fi film festivals and online showcases (Smith, Beach, & Shen, 2021). Furthermore, feedback loops built into the projects where students shared drafts and received criticism from peers and educators, mirrored

authentic scientific communication practices and further strengthened their sense of agency (Smith, Beach, & Shen, 2021). Through these multimodal productions, youth were not only passive consumers of climate information but also active creators of knowledge and advocates for change, showing that digital storytelling can be a powerful tool for cultivating activism, critical thinking, and resilience in the face of environmental issues (Smith, Beach, & Shen, 2021).

**3. Hopke, J. (2025, February 27). *Climate misinformation is rife on social media – and poised to get worse*. The Conversation. <https://theconversation.com/climate-misinformation-is-rife-on-social-media-and-poised-to-get-worse-247156>**

The Conversation (2025) looks at the rising danger of misinformation on climate change through social media—particularly through Meta's decision to reduce its fact-checking and content moderation programs. According to the source, the likelihood of coming across uncorrected misinformation rises as social media sites like Facebook and Instagram give up the responsibility to verify their content to users themselves. In addition, false claims, especially happening during climate-related disasters, usually spread quickly due to Meta's algorithmic promotion of emotionally charged posts. This false information regarding climate change is referred to as particularly “sticky,” which means that once people come across it, even if it is later proven to be false, it is hard to get rid of. This creates an unstable environment for youth online when they are seeking out information, making it difficult for them to tell fact from fiction when it matters most—for example, during climate crisis events. The website stresses that young users must use their own media literacy abilities to critically evaluate the reliability of content they come across in the absence of expert fact-checking.

This source also notes that consumers, especially young people, may experience confusion, fear, and a sense of helplessness as a result of being exposed to inaccurate or emotionally charged climate content during disasters. This psychological stress may worsen eco-anxiety and diminish their confidence, or trust, in legitimate climate science. In order to address this growing issue, The Conversation (2025) shows the significance of early intervention strategies, such as “prebunking” actual information before false information spreads out in the first place. Without having these supports in place for them, young people are left vulnerable to both informational harm, and emotional distress during climate crisis events.

**4. Kogan, P. (2025, February 21). *Digital Innovation for Climate Literacy*. Institute for Development Impact. <https://i4di.org/digital-tools-climate-literacy/>**

According to the Institute for Development Impact (2025), digital tools can significantly improve climate literacy of youth. The article shows how a variety of technologies, such as digital storytelling, VR experiences, AR apps, interactive platforms, simulations, and data visualization tools, can improve the effectiveness, accessibility, and engagement of climate education online, especially for youth. Allowing for engagement and entertainment can greatly improve the youth's desire to participate in finding out about, and learning accurate climate change information. The article notes that while apps like Earth Hero promote real-world action through personal goal setting, NASA's Climate Kids and WWF Free Rivers

are two examples of tools that help children engage with difficult climate concepts in more memorable and practical ways. However, the article emphasizes that having access to digital tools alone is not enough. To achieve meaningful climate literacy, students must learn critical evaluation skills, which would allow them to interpret, question, and apply the information these technologies provide.

The article also emphasizes the need for diversity and more extensive educational support to go hand in hand with technology access. Today, the usefulness of digital tools might be restricted by language and cultural barriers, especially for communities in the Global South. By using Argentina's success with combining digital resources and teacher training, the Institute for Development Impact (2025) argues that for youth to gain true climate literacy depends not just on the digital tools they use—or how they use them—but on integrating climate literacy into critical and accessible education systems to be taught by trained teachers and staff. This way, youth can be taught at an early age how to distinguish between misleading and credible information on climate change.

**5. Gilio-Whitaker, D. (2025, February 19). *Digital Media Literacy: Important lessons from a climate change classroom*. WACC. <https://waccglobal.org/digital-media-literacy-important-lessons-from-a-climate-change-classroom/>**

Gilio-Whitaker (2025) discusses the importance of media literacy in developing climate awareness when she recounts a classroom experience in which she was instructing undergraduate students on climate change. She explained that students were seen to be very susceptible to the spread of false information in digital media platforms and frequently arrived at university knowing very little about it. To address this, she designed the course to include exposure to contrasting media examples, such as a PBS documentary, a climate denial movie, and critical news analysis tools. Through these activities, students discovered how selective reporting, biased imagery, and emotional appeal may sway public opinion and perception. Thus, Gilio-Whitaker's course showed that direct exposure to misinformation, in combination with systematic media literacy education, helped students enhance their critical thinking skills and also develop a more evidence-based understanding of climate change.

Along with media literacy strategies, Gilio-Whitaker (2025) also mentioned the need for teaching to maintain its objectives and withstand political polarization, especially in light of the present attacks on environmental education and diversity. In her course, students were urged to compare how climate change policies were portrayed in the media in order to draw their own well-informed opinions, particularly during a very divisive election season. They were able to evaluate credibility on their own without feeling compelled to take a specific political stance thanks to the approach that Gilio-Whitaker taught them. In an age of digital disinformation, Gilio-Whitaker comes to the conclusion that media literacy is crucial for understanding climate change through differing political messages. Young individuals who are taught to think critically are better equipped to handle misinformation and sort through environmental challenges than those who are not. Thus, it must be taught at all educational levels.

- 6. Castek, J., & Dwyer, B. (2018). Think globally, act locally: Teaching climate change through digital inquiry. *The Reading Teacher*, 71(6), 755–761.**  
<https://doi.org/10.1002/tr.tr.1687>

Castek and Dwyer (2018) provide valuable insights into how digital inquiry-based climate education can expose students to both the complexity of climate change and the emotional challenges associated with confronting alarming environmental information. In their case study of sixth-grade classrooms in the United States and Ireland, the authors show that students initially approached climate change with deep curiosity, but soon encountered emotional responses such as confusion, concern, and distress as they navigated the overwhelming volume of climate-related information online (Castek & Dwyer, 2018). The study reveals that digital literacy practices—such as constructing digital concept maps and engaging in collaborative efforts—helped students manage the emotional impact by encouraging critical thinking, contextualization, and evidence-based reasoning (Castek & Dwyer, 2018). Students learned to distinguish between short-term weather patterns and long-term climate trends through digital comparison exercises, which not only built scientific understanding but also alleviated some of the misinformation-induced fear surrounding environmental variability (Castek & Dwyer, 2018).

The inquiry model implemented in these classrooms emphasized the importance of guiding students to ask meaningful questions, critically evaluate digital sources, and engage in creative problem-solving activities such as designing renewable energy solutions (Castek & Dwyer, 2018). These practices served not only to build content knowledge but also to build emotional resilience, as students shifted from passive recipients of dire climate news to active agents capable of proposing solutions (Castek & Dwyer, 2018). In addition, Castek and Dwyer (2018) stress that digital literacy instruction must intentionally address the emotional toll of climate inquiry by creating opportunities for students to reflect, collaborate, and develop a sense of agency. In doing so, educators can mitigate the psychological burden associated with eco-anxiety and misinformation, allowing students to respond to climate challenges with optimism rather than helplessness (Castek & Dwyer, 2018).

- 7. De Abreu, B. S. (2022). Media Literacy, equity, and Justice. *Taylor & Francis Group*.**  
<https://doi.org/10.4324/9781003175599>

De Abreu (2022) emphasizes that advancing digital climate literacy among youth requires more than teaching fact-checking or information navigation skills; it demands the integration of emotional regulation, critical media analysis, and a commitment to social justice. The book argues that emotional resilience is a foundational skill for navigating today's media-saturated environment, particularly where climate misinformation thrives (De Abreu, 2022). Youth are frequently exposed to content that is emotionally charged, polarized, or designed to trigger feelings of fear and helplessness, and without intentional support to help manage these reactions, the result is often disengagement (De Abreu, 2022). By promoting conscious emotional regulation alongside critical evaluation, educators can equip young people to not only recognize misinformation, but also to maintain their psychological well-being as they confront difficult realities like climate change (De Abreu, 2022). This dual focus is crucial for

preventing the kind of cognitive and emotional overload that undermines youth's ability to participate meaningfully in environmental advocacy (De Abreu, 2022).

Moreover, De Abreu (2022) underscores that promoting digital climate literacy must also involve a justice-oriented lens. Simply teaching students to identify accurate information is not enough. We must address the deeper systemic inequities that shape whose voices are heard in media spaces and whose are marginalized (De Abreu, 2022). Critical media literacy, as described in the book, involves understanding how climate narratives are framed, whose perspectives dominate them, and how digital environments both reflect and reinforce broader patterns of power and exclusion (De Abreu, 2022). By embedding social justice education into digital literacy programs, youth can be taught not just to fact-check individual claims, but to question structural inequalities embedded in climate discourse itself (De Abreu, 2022). This holistic approach—emotional regulation, critical evaluation, and justice awareness—offers a transformative model when preparing youth to navigate a complex information landscape while building resilience, agency, and civic responsibility in the face of global ecological crises (De Abreu, 2022).

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## Sample Research Studies

| Study/Source                                                    | Population/Context                                                                                  | Sample/Scope                                                                             | Intervention/Focus                                                                                 | Methodology                                                                            | Key Findings                                                                                 | Conclusion/Takeaways                                                                              | Limitations                                                                                    |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| Youth Created Media on the Climate Crisis (Beach & Smith, 2024) | Youth in schools and organizations creating digital media about climate change (global perspective) | Multiple youth projects in classroom and community settings; broad range of case studies | Media production (video, storytelling, social media, art, music) for activism and climate literacy | Edited volume; qualitative examples and instructional practices across media forms     | Youth build agency, critique the status quo, and develop multimodal communication skills     | Media production fosters youth activism and climate engagement across platforms                   | Variability in access to media tools and instructional support; context-specific effectiveness |
| Smith, Beach & Shen (2021)                                      | Middle school students in Miami (Project IF) and other student groups                               | Project IF case study and other multimodal narrative initiatives                         | Digital storytelling (sci-fi narratives, comics, videos, animations) for climate education         | Design-based research and analysis of youth multimodal climate projects                | Multimodal storytelling promotes emotional engagement, critical thinking, and audience reach | Youth gain confidence, agency, and collaborative skills through transmedia storytelling           | Program-specific findings may not generalize; requires access to tech and guided support       |
| Think Globally, Act Locally (Casteck & Dwyer, 2018)             | Sixth-grade students in U.S. and Ireland classrooms                                                 | Two classroom case studies using digital inquiry for climate learning                    | Inquiry-based digital literacy; climate questioning, renewable energy, and design challenge        | Codesigned classroom curriculum with phased instruction and multimodal tools           | Students show deep curiosity, interdisciplinary thinking, and creativity using digital tools | Inquiry-based digital learning helps students pose real-world questions and offer solutions       | Small sample (two classrooms); high scaffolding needed for elementary learners                 |
| Media Literacy, Equity, and Justice (De Abreu, 2023)            | Students, educators, and activists engaging in global media literacy and social justice efforts     | Global edited volume; multiple chapters and contributors across education sectors        | Critical media literacy on climate, misinformation, equity, AI, activism, and representation       | Thematic analysis of case studies, theoretical frameworks, and classroom interventions | Media literacy empowers action against environmental and social injustice; highlights equity | Media literacy is essential for navigating misinformation and promoting justice-oriented learning | Broad theoretical range; less detailed classroom-level implementation strategies               |