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Social media, misinformation, and digital literacy among young adults: a review of educational approaches and their effectiveness

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Abstract
Young adults now encounter most of their news and civic information through algorithmically curated social media feeds, a shift that has made this population a central focus of misinformation research. This narrative literature review synthesizes peer-reviewed evidence published between 2023 and 2026 on educational approaches to strengthening digital and media literacy among young adults, with attention to college and university contexts. Four major instructional approaches are examined: curriculum-based media literacy programs, lateral reading and source-verification training, psychological inoculation (prebunking) against manipulation techniques, and emerging efforts to build algorithmic and generative-AI literacy in response to deepfakes and synthetic media. Drawing on recent meta-analyses and systematic reviews, the paper finds consistent, moderate evidence that structured interventions improve young people's ability to detect false or misleading content and reduce their willingness to share it, with prebunking and lateral-reading approaches generally producing the strongest effects. However, effects on deeper attitudinal outcomes, such as belief change and resistance to persuasion, are less consistent, and gains observed in controlled settings often weaken when learners return to naturalistic, emotionally charged social media environments. The review also identifies persistent barriers to implementation, including limited instructional time, uneven teacher and faculty preparation, fragmented institutional policy, and a continuing gap between content-focused literacy instruction and the algorithmic systems that actually shape what young adults see online. The paper concludes that durable improvement in young adults' resilience to misinformation depends less on any single technique than on the sustained, cross-curricular integration of these approaches, supported by institutional commitment and ongoing faculty development.

Keywords: Digital literacy, media literacy, misinformation, social media, young adults, higher education, prebunking, inoculation theory

Introduction

Over the past decade, social media platforms have displaced traditional news outlets as the primary information environment for young adults. Surveys of college students following recent election cycles have found that short-video platforms and image-based social networks now rank among students' top sources of news, often ahead of newspapers, television, or institutional communications (Inside Higher Ed, 2025) [3]. This shift matters because social platforms are structured by recommendation algorithms that prioritize engagement and virality rather than accuracy, and because content on these platforms is frequently stripped of the contextual markers, such as bylines, publication dates, and editorial standards, that traditionally helped readers judge credibility.

Young adulthood is a particularly consequential period in which to study this problem. Unlike younger adolescents, young adults in higher education or early career settings are simultaneously forming lasting civic habits, exercising new political agency, and, in many cases, encountering the deliberate spread of political, health, and financial disinformation for the first time without direct parental mediation. At the same time, the information ecosystem itself has grown more complex: generative artificial intelligence tools now make it possible to produce convincing fabricated text, images, audio, and video at negligible cost, and recent evidence suggests that most people, including digitally fluent young adults, cannot reliably distinguish authentic from AI-generated media (López-Borrull & Lopezosa, 2025) [4].

In response, educators, communication scholars, and policymakers have devoted growing attention to educational interventions intended to build digital and media literacy, understood broadly as the set of skills needed to access, critically evaluate, verify, and responsibly share digital information. This paper reviews the recent empirical literature, concentrating on studies published between 2023 and 2026, to answer three questions: (1) What are the major educational approaches currently used to build digital literacy and misinformation resilience among young adults? (2) What does the available evidence show about their effectiveness? and (3) What barriers continue to limit the implementation of these approaches in real educational settings? The paper closes by considering the implications of this evidence for curriculum design and institutional policy in higher education.

Review Approach

This paper adopts a narrative literature review methodology, informed by the search and screening logic of the PRISMA framework but not intended as a formal systematic review or meta-analysis in its own right. Literature was identified through targeted searches of academic databases and search engines indexing peer-reviewed journals, preprint repositories, and reputable research organizations, using combinations of the terms media literacy, digital literacy, misinformation, disinformation, prebunking, inoculation theory, social media, young adults, higher education, and

generative AI. Priority was given to systematic reviews, meta-analyses, and large-sample experimental studies published between 2023[5] and 2026, supplemented by a small number of earlier foundational studies (identified through citation chaining within the recent reviews) where they were necessary to explain a theoretical framework, such as inoculation theory, that more recent work builds upon. Sources were screened for relevance to educational interventions and young-adult or general-adult populations, and duplicate or low-quality sources (e.g., non-peer-reviewed opinion pieces without empirical grounding) were excluded. Because this is a narrative rather than systematic review, findings are synthesized thematically around major intervention types rather than reported as a single pooled effect size.

Educational Approaches to Digital Literacy and Misinformation Resilience

The recent literature converges on four broad families of educational approach used to build young people's resistance to online misinformation: curriculum-based media literacy instruction, lateral reading and source-verification training, psychological inoculation or prebunking, and newer efforts aimed specifically at algorithmic and generative-AI literacy. These approaches are not mutually exclusive, and many effective programs combine elements of more than one.

Curriculum-Based Media Literacy Instruction

The most established approach embeds media literacy as a formal, sustained component of the curriculum rather than a one-off lesson. A 2026[7] systematic review and meta-analysis of 46 studies on adolescent and young-adult populations found that curricular media literacy programs were the most frequently evaluated intervention type, typically running six to twelve weeks and producing durable gains in students' ability to reason critically about digital content (Rodríguez Castillo *et al*., 2026) [7]. The review's authors emphasize that curriculum-based instruction works best when it is cross-cutting, meaning it is woven into multiple subject areas rather than isolated in a single unit, and when it treats media literacy as encompassing not only factual accuracy but also awareness of persuasive intent, bias, and the socio-emotional dynamics of sharing behavior.

In higher education specifically, institutions have experimented with embedding media and information literacy into general-education requirements, first-year seminars, and library instruction sessions. Survey data collected after the 2024 U.S. election cycle found that students themselves frequently identify their reliance on social media and personal networks for news, and many express interest in structured guidance from their institutions on how to evaluate what they encounter online, suggesting an appetite for expanded curricular investment (Inside Higher Ed, 2025) [3].

Lateral Reading and Source-Verification Training

A second major approach teaches a specific verification technique known as lateral reading, in which readers leave an unfamiliar page to research its source elsewhere on the web before evaluating its content, rather than reading vertically down the page itself. Within the 2026 meta-analysis discussed above, interventions built around lateral reading and active source verification produced some of the largest measured effects among the intervention types studied, with the meta-analytic estimate for this category showing a moderate-to-large improvement in students' ability to detect misinformation relative to comparison groups (Rodríguez Castillo *et al*., 2026) [7]. Because lateral reading is a discrete, teachable skill rather than a broad disposition, it lends itself to relatively brief training sessions, which may explain its comparatively strong showing in short-duration studies.

Psychological Inoculation and Prebunking

Rooted in inoculation theory, prebunking interventions expose learners to a weakened, forewarned version of a manipulation technique, such as emotional-language framing, false-dichotomy arguments, or impersonation tactics, before they encounter it in the wild, with the goal of building cognitive resistance in advance rather than correcting false beliefs after exposure (van der Linden, 2024) [9]. A 2023 systematic review and meta-analysis in the Journal of Medical Internet Research, synthesizing psychological inoculation studies, reported a reliable overall effect in reducing endorsement of and willingness to share misinformation, alongside improvements in participants' ability to judge the credibility of manipulative content (Lu *et al*., 2023). A subsequent meta-analysis focused specifically on media literacy interventions similarly found that inoculation-style approaches were among the more consistently effective techniques, though the size of the effect varied depending on which outcome was measured (Huang *et al*., 2024) [2].

More recent work has begun to probe the boundary conditions of prebunking. A 2025 systematic review covering 80 experimental studies concluded that intervention effectiveness depends more on which outcome is targeted than on the specific design of the intervention: most prebunking and related interventions reliably improve people's ability to detect misinformation, since that is typically the explicit training goal, but effects on broader persuasive outcomes, such as underlying attitudes, political polarization, or susceptibility to the continued-influence effect of misinformation already absorbed, are considerably less consistent (Droog *et al*., 2025) [1]. This distinction matters for young-adult education because programs are frequently evaluated only on detection accuracy, potentially overstating their impact on the deeper beliefs and behaviors that misinformation is intended to shape.

Algorithmic and Generative-AI Literacy

A newer and less mature strand of the literature addresses literacy needs created by recommendation algorithms and generative AI. Scholars increasingly argue that content-focused media literacy training, which teaches learners to evaluate a given piece of information, is insufficient on its own because it does not address how algorithmic curation determines which information learners encounter in the first place (Rodríguez Castillo *et al*., 2026) [7]. A 2025 scoping review of generative AI and disinformation, synthesizing 64 peer-reviewed studies published between 2021 and 2024, found that generative AI plays a dual role in the information ecosystem: it lowers the cost of producing convincing synthetic political, scientific, and journalistic disinformation, including deepfakes, while simultaneously creating new possibilities for detection tools and public education efforts (López-Borrull & Lopezosa, 2025) [4]. The

same review identified media literacy and education as one of the six major thematic areas of current scholarship on generative AI and disinformation, indicating growing recognition that digital literacy curricula must now explicitly address synthetic media rather than treating misinformation as a purely text-based phenomenon.

This need is reinforced by evidence on human detection ability. Research reviewed by UNESCO (2025) [1] indicates that people frequently cannot reliably distinguish authentic audio and video from AI-generated equivalents, and that repeated exposure to synthetic content can produce an illusory truth effect in which familiarity itself increases perceived credibility. The same body of research highlights a related risk sometimes called the liar's dividend, in which the mere existence of convincing deepfakes allows bad actors to dismiss authentic, damaging evidence as fabricated. Because these dynamics are relatively new, most published educational interventions have not yet been rigorously evaluated for their effect on deepfake detection specifically, and this represents one of the clearest gaps in the current evidence base.

Evidence on Effectiveness

Taken together, the recent meta-analytic literature supports several reasonably firm conclusions about the effectiveness of digital literacy education. First, structured educational interventions produce a statistically reliable, moderate improvement in learners' ability to identify false or misleading content compared with no-intervention or minimal-intervention control groups. The 2026 meta-analysis of curricular and skill-based programs reported an overall moderate effect size in favor of media literacy interventions, with substantial variation by intervention type: lateral reading and cognitive inoculation approaches produced the largest effects, while general curricular literacy programs, though still beneficial, produced comparatively smaller effects (Rodríguez Castillo *et al*., 2026) [7]. Independently, the 2023 meta-analysis of psychological inoculation research found a similarly moderate, statistically robust effect on credibility discernment and reduced sharing intentions across a large combined sample (Lu *et al*., 2023).

Second, effects on behavioral intention, particularly the willingness to share misinformation, tend to be somewhat more consistent than effects on deeper belief change. Several reviews note that cognitive inoculation interventions reliably reduce participants' stated intention to share false content, even when that content is emotionally engaging or aligned with participants' prior views, suggesting that inoculation may operate partly through heightened suspicion at the point of sharing rather than through wholesale belief revision (Rodríguez Castillo *et al*., 2026) [7].

Third, and more cautionary, the durability and real-world transfer of these effects remain uncertain. Reviewers repeatedly note that gains demonstrated in controlled, single-session laboratory or classroom studies tend to diminish when learners return to naturalistic social media environments characterized by social pressure, emotional intensity, and rapid scrolling (Rodríguez Castillo *et al*., 2026) [7]. The 2025 systematic review of 80 experimental studies similarly cautions that because most existing research measures narrow detection outcomes rather than the broader persuasive and attitudinal effects that misinformation is designed to produce, the field may currently be overestimating how much protection these interventions actually confer against the real-world influence of misinformation (Droog *et al*., 2025) [1]. Longitudinal and field-based evaluations, particularly with young-adult and college populations, remain comparatively rare, which limits confidence in the long-term effectiveness of any single approach.

Barriers and Challenges to Implementation

Despite encouraging evidence of effectiveness under study conditions, several structural barriers continue to limit the real-world implementation of digital literacy education.

- **Time and curricular space:** Surveys of educators consistently identify insufficient instructional time as the leading obstacle to teaching media literacy, even among instructors already committed to the subject; many report needing to fit media literacy alongside, rather than instead of, existing content requirements (National Association for Media Literacy Education [NAMLE], 2024) [6].

- **Uneven teacher and faculty preparation:** Effective instruction depends on educators who are themselves confident evaluating digital sources, understanding algorithmic curation, and recognizing manipulation techniques; many faculty report limited formal training in these areas, and available professional development resources are inconsistently distributed across institutions (Rodríguez Castillo *et al*., 2026) [7].

- **Fragmented institutional and policy support:** Media and digital literacy instruction is frequently left to individual instructors' initiative rather than being embedded as a coordinated, sustained institutional requirement, which produces significant variation in what students actually receive and undermines the cross-cutting, longitudinal design that the evidence suggests is most effective (Rodríguez Castillo *et al*., 2026) [7].

- **The algorithm gap:** Most existing curricula concentrate on evaluating individual pieces of content and give comparatively little attention to explaining how recommendation systems and generative AI shape what learners encounter in the first place, leaving a substantive gap between what is taught and how misinformation actually reaches young adults in practice (Rodríguez Castillo *et al*., 2026; López-Borrull & Lopezosa, 2025) [4, 7].

- **Limited transfer beyond the classroom:** Even well-designed interventions face the challenge that skills demonstrated under controlled conditions do not automatically generalize to the emotionally charged, socially mediated, fast-paced environment of everyday social media use, meaning that classroom success does not guarantee real-world protection (Droog *et al*., 2025) [1].

These barriers are mutually reinforcing: without institutional commitment, faculty development remains ad hoc; without adequate faculty development, curricular time is used inefficiently; and without curricula that address algorithmic and generative-AI dynamics directly, even well-taught

content evaluation skills address only part of the problem young adults actually face online.

Discussion and Implications

This review suggests that the question facing educators is no longer primarily whether digital literacy interventions work, since the recent meta-analytic evidence is reasonably consistent in showing that they do, at least for detection-related outcomes, but rather how such interventions should be designed, sequenced, and sustained to produce durable protection for young adults navigating an increasingly complex information environment. Several implications follow from the evidence reviewed here.

First, institutions of higher education have good reason to move away from one-off orientation sessions or single-lecture treatments of media literacy and toward sustained, cross-curricular integration, consistent with the finding that curricular programs combining multiple techniques over extended periods outperform brief, isolated interventions (Rodríguez Castillo *et al*., 2026) [7]. General-education requirements, first-year experience courses, and library instruction programs are plausible institutional homes for this kind of sustained exposure, provided they are coordinated rather than left to individual instructor discretion.

Second, because lateral reading and prebunking techniques show some of the strongest and most transferable effects, they merit particular emphasis within broader curricula, not as replacements for content-focused instruction but as complementary, skill-based components that are relatively efficient to teach and appear to generalize reasonably well across topics (Lu *et al*., 2023; Rodríguez Castillo *et al*., 2026) [7].

Third, the evidence on generative AI and algorithmic curation implies that digital literacy curricula written even a few years ago may already be incomplete. Given that convincing synthetic media is now inexpensive to produce and difficult for most people, including young adults, to detect reliably, institutions should begin incorporating explicit instruction on generative AI, synthetic media, and the basic logic of algorithmic recommendation systems rather than treating misinformation education as a purely text- and source-based exercise (López-Borrull & Lopezosa, 2025; UNESCO, 2025) [4].

Fourth, the gap between laboratory effectiveness and real-world transfer points to a need for evaluation designs that move beyond single-session, self-report measures toward longitudinal and naturalistic assessment of how young adults actually behave when they encounter misinformation outside the classroom. Institutions investing in digital literacy programming should, where possible, build in follow-up assessment rather than relying solely on immediate post-test gains, which the literature suggests may not persist (Droog *et al*., 2025) [1].

Finally, addressing the structural barriers identified in this review, particularly limited instructional time and uneven faculty preparation, will likely require support beyond the level of individual courses or departments. Sustained institutional and, in some cases, government policy commitment appears to be a precondition for the kind of long-term, cross-curricular implementation that the effectiveness evidence favors (NAMLE, 2024).

Conclusion

Social media has become the dominant information environment for young adults, and the misinformation, disinformation, and increasingly convincing synthetic content that circulate within it pose genuine risks to informed civic participation and personal decision-making. The recent literature offers encouraging, if qualified, evidence that educational interventions, particularly curriculum-based programs, lateral reading training, and psychological inoculation, can meaningfully improve young adults' ability to detect and resist misinformation, with moderate effect sizes reported across several independent meta-analyses published since 2023. At the same time, the evidence base also counsels humility: effects on deeper attitudinal change are less consistent than effects on detection, gains observed in the classroom do not always transfer cleanly to real-world social media use, and most existing curricula have yet to catch up with the algorithmic and generative-AI dynamics that increasingly shape what young people see online. Closing these gaps will require sustained institutional investment, better-prepared faculty, and curricula that treat digital literacy not as a discrete unit but as an ongoing, evolving competency for civic life in a digital age.

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