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Reframing Literacy in the Age of AI: Critical Literacy in Adult and Lifelong Learning

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Abstract

In increasingly digital and AI-mediated educational environments, adult learners are required to navigate complex information landscapes shaped by artificial intelligence, digital platforms, and algorithmically generated content. In such contexts, digital literacy can no longer be understood solely as the acquisition of technical competencies. Rather, contemporary digital literacy requires the evaluative and reflective capacities traditionally associated with critical literacy, including the ability to question assumptions, critically evaluate information, engage dialogically with knowledge, and recognise the technological and ideological systems that shape contemporary communication and knowledge production. Consequently, critical literacy has become particularly important within adult and lifelong learning as learners seek to participate meaningfully and ethically within digitally mediated societies. Drawing on Freirean pedagogy and transformative learning theory, this paper revisits critical literacy as a reflective, emancipatory, and socially situated practice grounded in critical consciousness and perspective transformation. It explores how digital technologies can support the development of critical literacy when embedded within learner-centred pedagogies. It further examines the pedagogical potential of digital tools including digital badges, Turnitin Clarity, and Gather to foster reflection, dialogue, writing development, communicative learning, and evaluative judgement. Rather than positioning technology as inherently transformative, this paper argues that it is the pedagogical framing of digital tools that determines their capacity to support critical engagement and learner agency, preserving human criticality within AI-mediated educational systems. This paper highlights the continuing relevance of transformative learning theory in contemporary digital contexts and argues that critical reflection and dialogic learning remain central to adult education in an era shaped by artificial intelligence and digital communication. It concludes that critically informed digital pedagogies can create meaningful opportunities for learners to develop the reflective and evaluative capacities necessary for informed participation in contemporary digital society.



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1. Introduction

As Pangrazio and Selwyn (2023) observe, our everyday lives are shaped by the data that is produced about us, and by us, through digital technologies. Adult learners are now required to navigate complex digital environments characterised by information overload, algorithmically generated content, misinformation, and rapidly evolving technological systems. In this paper, adult learners are understood broadly to include individuals engaged

in adult, higher, and lifelong learning, including those returning to education while navigating rapidly evolving digital and AI-mediated environments. Although the issues discussed are relevant to learners of all ages, adult learners often bring established professional, social, and epistemological perspectives shaped by prior educational, workplace, and life experiences. In this context, rapidly evolving AI-mediated environments may prompt learners to critically reconsider established assumptions about authority, knowledge, and information. This makes critical literacy and the capacity for critical reflection particularly significant within adult education, where learners are encouraged not simply to acquire new competencies but to re-evaluate existing ways of knowing and engaging with the world. AI does not simply introduce new digital tools; it fundamentally alters the conditions under which knowledge is produced, evaluated, and trusted. Consequently, digital literacy itself requires reconceptualisation as a critical, reflective, and epistemic practice.

In such contexts, literacy can no longer be understood solely as the acquisition of functional reading and writing skills or as a narrowly instrumental form of digital competence. Digital literacy is the ability to use digital technologies to access, evaluate, create, and communicate information. As Gilster (1997) emphasises, it is fundamentally about “mastering ideas, not [computer] keystrokes” (p. 1), extending beyond technical competence to encompass the critical navigation of digitally mediated environments shaped by technological, cultural, and social forces (Weisinger & Beliveau, 2023). Lankshear and Knobel (2008) further argue that literacy is best understood as a set of socially situated practices rather than a singular technical competency. From this perspective, digital literacy may be more appropriately understood as “digital literacies” reflecting the diverse contexts, technologies, and social practices through which meaning is produced and interpreted in contemporary digital environments. There is, then, a growing need for forms of critical literacy that enable learners to engage meaningfully within digital and social environments.

Historically, adult literacy education has been grounded in learner-centred and emancipatory traditions that emphasised critical inquiry, reflection, agency, and social participation. Central to these traditions is the work of Paulo Freire, who rejected what he termed the “banking model” of education in which learners are treated as passive recipients of knowledge (Freire, 1970, p. 77). Instead, Freire proposed a dialogic model of education rooted in critical consciousness and transformative action. For Freire, literacy was not merely a technical skill but a means through which learners could develop an awareness of the social, political, and cultural realities shaping their lives and, in turn, act upon the world to transform it. For Freire, learning required dialogue, questioning, and shared inquiry rather than the passive transmission of knowledge. As Freire observed “banking education resists dialogue; problem-posing education regards dialogue as indispensable to the act of cognition” (Freire, 1970, p. 12). Mezirow’s transformative learning theory similarly emphasises critical reflection on assumptions and meaning perspectives, positioning dialogue and reflective judgement as central to adult learning and perspective transformation.

The increasing integration of digital technologies into education raises important questions about how critical literacy can be fostered within contemporary learning environments. While digital technologies are often associated with efficiency, access, and innovation, they also present significant challenges related to the evaluation of information, algorithmic influence, and the ethical use of artificial intelligence. As Selwyn (2022) has observed, digital technologies might be at the heart of how we communicate but there are aspects of education that demand sustained analysis and critical thought. At the same time, digital technologies also offer new pedagogical opportunities to support critical engagement and reflective learning. When embedded within learner-centred pedagogies, digital tools can create space for critical reflection, dialogue, and evaluative judgement. Technologies such as digital badges, Turnitin Clarity, and Gather have the potential to support

critical evaluation, reflective writing and communicative learning. However, technology itself is not inherently transformative. Rather, it is the pedagogical framing of digital tools that determines their capacity to support critical literacy, reflection and learner agency.

Drawing on Freirean pedagogy and transformative learning theory, this paper examines the continuing relevance of critical literacy within contemporary adult and life-long learning contexts. It explores how digital pedagogies can support critical reflection, evaluative judgement, and communicative learning in evolving digital and AI-mediated educational environments. In doing so, this paper argues that critical literacy remains central to adult education and that thoughtfully designed digital learning environments can play an important role in supporting adult learners to navigate AI-mediated societies as reflective, critically aware, and ethically engaged participants. This paper contributes to contemporary debates on digital literacy by reframing critical literacy as a critical, reflective, and dialogic practice necessary for navigating AI-mediated knowledge systems.

2. Critical Reflection and Transformative Learning

Critical literacy is closely connected to processes of critical reflection, dialogue, and perspective transformation within adult learning. Both Freirean pedagogy and transformative learning theory emphasise the importance of enabling learners to critically examine assumptions, interrogate knowledge claims, and develop greater awareness of the social, cultural, and ideological forces shaping their understanding of the world. In contemporary digital environments, these capacities have become particularly significant as learners are required to navigate complex information ecosystems characterised by uncertainty, algorithmic influence, misinformation, and rapidly evolving forms of knowledge production. While constructivist and connectivist theories have shaped understandings of digital learning, this paper adopts Freirean pedagogy and transformative learning because they foreground critical reflection, agency, and perspective transformation.

A cornerstone of Paulo Freire's work is the concept of critical consciousness through which learners develop an awareness of the socio-cultural realities that shape their lives and recognise their capacity to act upon and transform those realities (Freire, 1973). Freire rejected transmissive models of education that positioned learners as passive recipients of information, arguing instead for dialogic and participatory approaches grounded in reflection, questioning, and social engagement (Freire, 1970). Literacy, within this framework, extends beyond the acquisition of technical skills to become a means of reading both the word and the world critically (Freire & Macedo, 1987). Freire's emphasis on dialogue and critical engagement thus remains highly relevant within contemporary digital environments. Freire's later scholarship continued to develop and refine these ideas, emphasising critical curiosity, learner autonomy, dialogue, and the ethical and democratic dimensions of educational practice (Freire, 1994, 1998).

Closely aligned with Freire's work is the transformative learning theory of Jack Mezirow, who defines transformative learning as 'the process of learning through critical reflection via instrumental or communicative learning and acting on the learned insights derived from transformation of perspectives' (Mezirow, 1997, p. 11). Mezirow (1991) argues that transformative learning occurs when learners become critically aware of tacit assumptions and begin to reassess previously unquestioned ways of thinking and understanding. Adults interpret experience through established frames of reference shaped by culture, society, and prior experience (Mezirow, 1997), and critical reflection enables these frames to be examined and potentially revised. However, not all instances of critical reflection necessarily result in perspective transformation. Rather, transformation entails a more fundamental revision of established frames of reference, potentially leading to more inclusive, discriminating, and integrative ways of interpreting experience (Mezirow, 1991,

1997). Mezirow also acknowledges that such transformation may develop cumulatively through “a cumulative, progressive sequence of insights resulting in changes in point of view and leading to a transformation in habit of mind” (Mezirow, 2007, p. 13).

Transformative learning theory is particularly useful for understanding the importance of critical literacy within digital learning environments because it foregrounds the role of reflective judgement, communicative learning, and perspective transformation. Mezirow emphasises that learners require opportunities to engage dialogically with others, critically examine different perspectives, and reflect upon the assumptions informing their own interpretations. Such processes are increasingly important within digitally mediated educational spaces where learners must navigate competing information sources, evaluate credibility, and make informed judgements about the validity and reliability of knowledge claims. Perspective transformation is a process whereby the individual becomes reflective of the world view he or she holds, understands the constraints of the perspective, integrates other perspectives, and reformulates how he or she makes meaning of experiences. It is the emancipatory process of:

Becoming critically aware of how and why the structure of psycho-cultural assumptions has come to constrain the way we see ourselves and our relationships, reconstituting this structure to permit a more inclusive and discriminating integration of experience and acting upon these new understandings.

(Mezirow, 1981, p. 14)

Mezirow argues that perspective transformation occurs when learners critically reassess previously unquestioned assumptions and reinterpret the meaning of their experiences. Central to this process is critical self-reflection, as ‘the most significant learning experiences in adulthood involve critical self-reflection—reassessing the way we have posed problems and reassessing our own orientation to perceiving, knowing, believing, feeling, and acting’ (Mezirow, 1990, p. 12). Mezirow also emphasises the importance of communicative learning in enabling learners to engage with alternative perspectives and develop more reflective understandings of experience. Such transformation is often prompted by “disorienting dilemmas” in which ‘old ways of knowing cannot make sense’ of new experiences, thereby becoming catalysts for critical reflection and perspective transformation (Mezirow, 1990, p. 14).

Importantly, neither Freire nor Mezirow position learning as merely the acquisition of information or technical competencies. Rather, both emphasise the transformative potential of education in fostering critical awareness, reflection, and social engagement. These perspectives have important implications for contemporary digital pedagogy. Within AI-mediated learning environments, the educational value of digital technologies depends not upon the tools themselves, but upon how they are pedagogically framed to support critical engagement, dialogue, and evaluative judgement. In this sense, critical literacy within digital environments involves more than technological proficiency. It requires the development of reflective capacities that enable learners to critically interpret information, question assumptions, evaluate competing perspectives, and participate thoughtfully within complex digital societies. Freirean pedagogy and transformative learning theory therefore remain highly relevant frameworks for understanding how adult education can respond to the challenges and possibilities presented by contemporary digital and AI-mediated learning environments.

3. Critical Literacy in Digital Contexts

As Aguilera and Pandya (2021) have outlined, resurgent social, political, cultural, and economic tensions, in part facilitated by emerging information and communication tech-

nologies, underscore the need to cultivate new forms of critical literacy in our digital age. Indeed, Car and Šobota (2025) advance critical information literacy as a pedagogical framework to address disinformation, beyond traditional source-based or deficit approaches. Critical literacy within digital environments involves not only interpreting texts but also understanding the technological and ideological systems through which knowledge is produced, filtered, and circulated. Learners today are increasingly exposed to vast quantities of information generated through digital platforms and artificial intelligence systems. However, there is no evidence in scholarly literature that learners are expert searchers, or that the search skills of learners improve with time, even for the Google generation, which refers to those born after 1993 (Williams & Rowlands, 2007, p. 3). Research into digital information-seeking behaviour highlights significant concerns regarding learners' critical engagement with online information. Studies by CIBER (Williams & Rowlands, 2007) found that users frequently engage in horizontal information seeking, rapidly skimming webpages, viewing only limited material, and quickly moving between sources without sustained engagement or critical evaluation. Learners often spend little time assessing the relevance, accuracy, or authority of information, relying instead on speed, convenience, and familiar platforms such as Google. Research also suggests that many learners struggle to formulate effective search strategies, evaluate search results critically, or distinguish between credible and unreliable sources. Such behaviours reinforce the growing importance of critical literacy within digital environments, where learners require not only technical search skills, but also the reflective and evaluative capacities necessary to analyse, question, and critically assess a digitally mediated information landscape (Rowlands et al., 2008, p. 290).

Contemporary digital environments are shaped by forms of algorithmic authority that influence how knowledge is encountered, prioritised, and interpreted. Search engines, social media platforms, and AI systems do not simply provide neutral access to information; they actively curate visibility through ranking systems, recommendation algorithms, and data-driven personalisation. As a result, learners often encounter information within filtered digital environments that shape perception, reinforce existing assumptions, and influence understandings of credibility and authority. As Weisinger and Beliveau have convincingly argued, content is still subject to gatekeeping, but by the platform media companies that act as our conduit to the content (Weisinger & Beliveau, 2023, p. 18). Noble (2018) has further outlined the ways in which search engines actively curate visibility, and digital platforms influence how knowledge is produced, circulated, and legitimised. Critical literacy in AI-mediated contexts therefore requires not only the ability to evaluate information itself, but also an awareness of the technological and platform structures that influence how knowledge is produced, circulated, and legitimised, what Aguilera and Pandya have referred to as critical digital literacy (CDL) practices.

The emergence of artificial intelligence has intensified the challenges associated with critical literacy in digital environments. As AI becomes embedded within educational and everyday information practices, AI literacy requires not only an understanding of how such technologies operate, but also the capacity to critically evaluate their outputs and engage with their ethical implications (Ng et al., 2021). Generative AI systems can produce fluent and authoritative-seeming content while also generating inaccurate, biased, or fabricated information, complicating traditional understandings of authorship, expertise, and truth (Kasneji et al., 2023). Critical literacy in the age of AI therefore requires reflective judgement and epistemic awareness, including an understanding of how algorithmic systems and data-driven platforms shape the information learners encounter and influence knowledge formation. Such awareness draws upon Freire's concept of critical consciousness, extending its relevance to contemporary digital contexts, where learners must become critically aware

not only of texts and social structures, but also of the technological systems that mediate experience and understanding.

Navigation within digital environments has therefore become an ever more complex literacy practice. Learners must negotiate multiple sources of information, shifting forms of authority, and competing truth claims while simultaneously managing the cognitive and emotional demands associated with constant digital engagement. For adult and lifelong learning, these developments have significant pedagogical implications. Rather than positioning digital technologies as either inherently beneficial or inherently problematic, critical literacy frameworks encourage learners to engage reflectively with digital tools and systems. In this sense, the development of critical literacy is essential not only for academic learning but also for informed participation, democratic engagement, and social agency within contemporary digital societies.

4. Digital Pedagogies and the Development of Critical Literacy

While digital technologies and artificial intelligence present significant challenges for contemporary literacy practices, they also offer important pedagogical opportunities to support critical reflection, dialogic learning, and evaluative judgement. The educational value of such technologies does not lie in the tools themselves, but in the ways in which they are pedagogically framed to encourage learners to analyse, question, interpret, and critically engage with knowledge. Informed by transformative learning theory, digital pedagogies can create opportunities for learners to examine and re-evaluate assumptions, encounter multiple viewpoints, and develop greater awareness of how knowledge is constructed within digital environments. As [Avila \(2021\)](#) argues, digital literacy is much more than technical skills; it equips learners to engage with digital technologies critically, ethically, and with an awareness of the social and power structures that shape them. For the purposes of this article, digital badges, Turnitin Clarity and Gather were selected because together they represent complementary dimensions of digital pedagogy: reflective assessment, process-oriented writing development, and collaborative dialogue. These examples are not presented as evidence that particular digital tools inherently produce Freirean critical consciousness or Mezirowian perspective transformation. Rather, they illustrate how, when embedded within critically oriented pedagogical practice, digital technologies may foster processes such as critical thinking, reflection, dialogue, evaluative judgement, and the questioning of assumptions. While these processes resonate with the broader pedagogical traditions associated with Freire and Mezirow, they should not be equated with the more fundamental forms of critical consciousness or perspective transformation articulated within these theoretical frameworks.

4.1. Digital Badges and Micro-Credentialing

While digital badges are often associated with competency-based approaches to learning, they may also function as reflective pedagogical tools when designed to support metacognition and critical engagement. Critical thinking has long been considered the cornerstone of media and information literacy ([Andersson, 2021](#)) and a digital badge in critical thinking can encourage learners to reflect upon their reasoning processes, evaluate evidence, engage critically with sources, and demonstrate reflective judgement. Rather than simply recognising task completion, such badges may support learners in becoming more aware of how they analyse information, construct arguments, and question assumptions. A learner who initially accepts AI-generated information as authoritative may, through structured reflection, comparison with peer-reviewed evidence, and critical evaluation of AI outputs, become more aware of issues of bias, credibility, and epistemic authority. Such activities can foster critical thinking, evaluative judgement, and reflection on previously

unexamined assumptions about digital information. In this sense, digital badges can contribute to the development of critical literacy by making reflective and evaluative practices more visible within the learning process.

Andersson (2021) highlights the rise of extremism and populism in recent years and notes the role of information, disinformation, and propaganda in spreading mistrust about established information institutions such as journalism, education, and science. These developments underscore the growing importance of forms of critical digital literacy that move beyond technical competence to foster critical awareness, enabling learners to recognise and challenge the ideological and technological forces that shape digital participation. Gipson (2025) advocates for holistic strategies integrating deep racial and cultural analysis, technical/legal platform oversight, and recognition of the power imbalances between tech companies, the tools they create, and users. Pedagogical approaches like the digital badge shift learners from passive consumers of information toward more active and reflective participants in knowledge construction. Through structured and cumulative opportunities for reflection, a micro-credential in critical thinking and AI literacy can support the gradual development of more critically reflective approaches to knowledge and digital information (De Brún & Cullinane, 2026). Micro-credentials can thus be a powerful tool in fostering a curriculum of consciousness focused on developing culturally literate critical thinkers, moving from adherence to a structure of socially prescribed knowledge, to one that encompasses what Greene (1971) refers to as a gradual growth of consciousness into expression. While such processes should not be equated with perspective transformation itself, they may support learners in questioning previously unexamined assumptions and developing more critically reflective approaches to knowledge and authority.

4.2. Turnitin Clarity

Clarity is an AI-enabled assessment tool built into Turnitin that focuses on how students produce work, not just the final result. Turnitin Clarity aims to shift assessment from judging finished work to understanding the student's writing process—helping educators evaluate progress, ensure academic integrity, and give more meaningful feedback. This tool also supports self-directed learning, enabling learners to identify their learning process and evaluate their progress. The use of Turnitin Clarity also offers opportunities to support critical reflection and writing development within digital learning environments, as Buckingham (2006) has pointed out digital tools can enable students to conceptualise the activity of production in much more powerful ways than was possible with analogue media. Rather than functioning solely as a mechanism for detecting plagiarism, tools such as Turnitin Clarity can support formative approaches to writing by encouraging learners to engage recursively with drafting, feedback, revision, and self-assessment. Reflection on writing processes can help learners become more aware of how they construct arguments, use evidence, and communicate ideas. When pedagogically framed as a tool for reflection rather than performance monitoring, Turnitin Clarity can encourage learners to examine their writing processes, evaluate the influence of AI on their decisions, and reflect critically on questions of authorship, evidence, and knowledge construction. However, such tools also raise important questions concerning surveillance, authorship, and the monitoring of student writing processes within AI-mediated assessment environments.

4.3. Gather

Gather is a collaborative digital learning environment that supports interaction, movement, and small-group engagement within virtual educational spaces (De Brún, 2022). Unlike more static online platforms, it enables learners to participate in dialogic and communicative forms of learning that may support collaboration, peer interaction, and

reflective engagement. From a pedagogical perspective, such environments can foster participation and shared meaning-making in ways that align with Freirean and transformative approaches to adult learning. Freire promotes critical thinking and argues that ‘dialogue is indispensable to the act of cognition, which unveils reality’ (Freire, 1970, p. 12). Freire emphasised the importance of dialogue, participation, and shared meaning-making within emancipatory educational practice, while Mezirow identified communicative learning as central to perspective transformation. Digital spaces such as Gather can create opportunities for learners to engage in discussion, collaborative problem-solving, peer interaction, and reflective dialogue in ways that support the exploration of multiple perspectives and the development of critical awareness. Importantly, these technologies do not automatically foster critical literacy. Digital tools can easily reproduce passive or transmissive forms of learning if used without reflective pedagogical design. The development of critical literacy depends upon creating learning environments that encourage learners to question assumptions, evaluate information critically, engage dialogically with others, and reflect upon the social and technological systems shaping contemporary knowledge practices. Through dialogue and collaborative inquiry, learners may encounter alternative perspectives that challenge previously unexamined assumptions and encourage critical reflection on knowledge, identity, and digital participation.

Within AI-mediated educational contexts, the role of the educator therefore remains central. Educators play a critical role in scaffolding reflective engagement, facilitating dialogue, encouraging evaluative judgement, and supporting learners in navigating complex digital information environments. Critical literacy in contemporary education involves not only technological competence but also the capacity to analyse, interpret, question, and ethically engage with knowledge in digitally mediated societies. Critically informed digital pedagogies therefore offer important possibilities for adult and lifelong learning. When thoughtfully implemented, digital badges, Turnitin Clarity, and collaborative digital environments such as Gather can support learners in developing the reflective, dialogic, and evaluative capacities necessary for critical participation within contemporary digital culture.

5. Conclusions

The emergence of AI-mediated knowledge systems fundamentally reframes critical literacy as an epistemic practice concerned not only with interpreting texts, but also with interrogating the technological infrastructures, algorithmic systems, and forms of authority through which knowledge is produced and legitimised. Adult learners are increasingly required to navigate digital environments characterised by rapidly expanding information, algorithmic influence, AI-generated content, and competing knowledge claims. This paper has argued that Freirean pedagogy and transformative learning theory continue to provide valuable frameworks for understanding critical literacy within contemporary adult and lifelong learning, where learners must interpret, evaluate, and question information rather than passively consume it.

This paper has further argued that the transformative potential of digital technologies depends not on the technologies themselves, but on the pedagogical approaches through which they are implemented. Drawing on the examples of digital badges, Turnitin Clarity, and Gather, it has demonstrated how digital tools can support critical thinking, reflection, dialogue, and evaluative judgement when embedded within critically oriented pedagogical practice. Such approaches move beyond narrow understandings of digital literacy as technical competence, instead positioning it as a socially situated practice requiring analysis, ethical judgement, and critical awareness of the technological systems, algorithms, and power relations that shape contemporary knowledge production. In this sense, digital

pedagogies create opportunities for learners to develop critical agency in their engagement with digital platforms and AI-mediated knowledge systems (Kobrin, 2023).

These pedagogical approaches also have important democratic implications. As Tran (2025) observes, no population is immune to the risks posed by digital illiteracy within an increasingly platform-mediated information environment. Developing critical literacy is therefore essential not only for evaluating information, but also for resisting manipulation, strengthening democratic participation, and supporting informed citizenship. Complementing this argument, Pangrazio and Selwyn (2023) argue that education must also encourage learners to rethink the role of data in everyday life and reclaim agency within progressively more data-driven societies. The role of the educator therefore remains central in creating learning environments that foster dialogue, critical reflection, and the critical examination of assumptions. Rather than simply adopting new technologies, adult education must prioritise pedagogical practices that cultivate reflective judgement, epistemic agency, and critical engagement with AI-mediated knowledge.

Ultimately, this paper argues that the future of adult and lifelong learning depends upon preserving human criticality within contemporary digital educational environments. As Biesta (2015) reminds us, education is concerned not only with qualification and participation, but also with forms of subjectification that enable learners to act critically, reflectively, and ethically within contemporary society. In the age of AI, critical literacy is no longer an extension of digital literacy but one of its defining dimensions, preserving human criticality by enabling learners not only to participate in digital society, but also to question, shape, and transform it.

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