Critical literacy and social media

– for L1 language learners in the Second Machine Age

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This article explores the question, "Do we need a new critical literacy in the Second Machine Age?" Critical literacy theorists understand that all forms of language and texts, including social and mass media, are ideologically shaped and constituted by power relations. Since the rise of Web 2.0 – the read-write or social web – social media platforms, such as Facebook, Instagram, Twitter/X, and TikTok have become key sites for the rapid production, circulation, and critique of information. Yet the convergence of technology, media, and communication calls for new critical literacy competencies that extend well beyond functional language use to include new forms of algorithmic literacy for empowerment and democratic citizenship in the Second Machine Age. This paper guides L1 [first language] education teachers to understand new opportunities to engage adolescents, who are one of the largest groups of social media users. It explores some of the new critical literacy skills that students need to understand AI-assisted information architectures of social media, which have given rise to attention engineering, echo chambers, predictive analytics, data privacy issues, chat bot answers, tracking, biometric data use, and emotional contagion, among other consequences of algorithm-driven text circulation. The politics of meaning are changing, requiring teachers and students to apply critical literacy skills to discern how dominant meanings are reproduced, challenged, or transformed in social media and other digitally networked spaces.

Introduction: Do we need a new critical literacy in the Second Machine Age?

This paper addresses the key question, "Do we need a new critical literacy in the second machine age, or are the central principles of critical literacy unchanged?" The Second Machine Age refers to machine learning and AI that is not based on conventional computer programming (Brynjolfsson & McAfee, 2014). It is argued here that the heart of critical literacy remains fundamentally unchanged in terms of its core concepts: first, that language is central in the production, maintenance, or transformation of power relations, and second, that humans can change the status quo by understanding how language contributes to the domination of some groups by others (Fairclough, 2001). However, what is needed is expanded understandings of the complex mechanisms of technology and language in the new machine age. The algorithmic mechanisms of media are vastly changed in recent years. No longer are media texts just produced by editors, journalists, and fact-checkers; they are produced by anyone at any time. Data-driven technology can filter social media advertising to target audiences using predictive analytics that are based on the users' preferences (Valtonen et al., 2019).

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In these radically shifted dynamics, popular texts are circulated to millions of like-minded users, irrespective of textual authenticity and the expertise of the author. Without human content moderators, these algorithmic formulas contribute to promulgating mis- and disinformation. These two concepts are related, since misinformation is misleading or false information presented online that is unintentionally deceptive, and disinformation is both false and deliberately misleading (Hill, 2022). There is an abundance of fake news: the deliberate presentation of false claims as news, misleading by design – claims which are often grossly inaccurate (Gelfert, 2018; Pennycook & Rand, 2021). Machine learning algorithms that work behind technology to dictate social media feeds – what users see – can create echo chambers where users' existing beliefs and interests are reinforced in endless cycles of amplification. A key problem with echo chambers is that fabricated news and polarised attitudes are not challenged, and conflicting facts and voices remain unheard, facilitating social networks that become unhealthily homogenous (Lazer et al., 2018).

Adolescents and social media use

Millions of people engage with information presented on digital media platforms that extend beyond mass media, involving reading, writing, and producing content using social media; adolescents in particular use these sites heavily (Bakshy et al., 2015). "Social media" refers to networked media platforms originating in Web 2.0 applications designed to connect user-specific profiles with others to share, view, and interact with user-generated content (Obar & Wildman, 2015). Since the rise of Web 2.0 – the "social web" or "read-write" web – that arose early this millennium (Mills & Chandra, 2011), the literacies used for civic participation by young people, and by L1 language learners, have rapidly shifted toward user-driven social media platforms, such as Instagram, Facebook, YouTube, WhatsApp, TikTok, and Twitter/X (Valtonen et al., 2019).

Much of the content on social media is multimodal, that is, combining two or more modes, such as visual, audio, linguistic, and gestural elements (Mills 2008). Social media platforms support the rendering of information to persuade or entertain viewers through novel digital formats that can edit or airbrush reality. Social media texts can include filtered still and moving images, and deepfakes – hyper-realistic videos that use AI to impersonate people and present falsity to the public as reality (Westerlund, 2019). These hybrid media texts require multimodal, critical analysis to interpret, evaluate, and judge the authenticity and veracity of visual and verbal meanings and to identify the vested interests of people and corporations in their production and circulation (Talib, 2018).

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The need to teach language learners to interrogate inside the black box of algorithm-driven media is vital in the Second Machine Age. The aim of formal media literacy education is to guide learners

"to reflect systematically on the processes of reading and writing, to understand and to analyse their own experience as readers and writers" (Buckingham 2003, p. 41). The transformative edge of critical media literacy arises from the key premise that language is socially constructed and has an important role in challenging or maintaining ideologies and power relations (Fairclough, 2001). While debates on critical literacy in a digital age have given rise to a range of related yet differentiated concepts – such as critical digital literacy, critical media literacy, and critical evaluation – what unites these approaches is the underpinning proposition that cultural assumptions and the social construction of texts require critical interrogation (Mills, 2008b).

Why first language learners need support: Children and youth on social media

Why do first language teachers need to address social media in the classroom? Recent research shows that among school children aged 4-17, the most popular social media sites are currently TikTok, YouTube, Twitch, and Discord, with TikTok offering a stream of predominantly decision-free short video viewing and sharing (Hill, 2022). News is most often accessed by teens aged 8-12 years via YouTube (Notley et al., 2022), with teen engagement most often incidental, passive, and experienced relationally through peers. Children are more likely to trust digital news if it is personally connected to, or reinforced by, their offline networks, such as families and trusted adults, including teachers. This suggests that education needs to play a crucial and active role in apprenticing young language learners to critically evaluate sources of information on social media –which can be done in the L1 classroom (Hill, 2022).

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The issues raised here do not negate the benefits of social media use nor advocate for the inoculation of young language learners against social media content, precluding safe and productive engagement with online content. Rather, guiding students to engage in responsible social media use can afford opportunities to develop intercultural skills to empathise with others across local and geographically removed spaces (Scholes et al., 2022). This is particularly important given positive research on the benefits of social media engagement for young people in terms of social identity formation and digital citizenship in peer- and friendship-driven networks. Young people can use social media in safe ways to develop online support networks that work against social isolation and allow them to connect with those who have shared interests in online affinity groups (Gee, 2018). Social media can support the negotiation of shared problem-solving, distributed cognition, language development, and mutually understood discourses and ways of negotiating and interacting in online collaborative environments (Mills, Chandra & Park, 2013). There are rich opportunities to use multimodal language and to socially construct knowledge in creative, meaningful, and sophisticated ways using examples from social media and to develop media literacy skills that focus on production, rather than uncritical consumption, of media texts (Alvermann & Hagood, 2000). For example, classroom activities can involve constructing imagined posts about important social issues that are carefully constructed to protect the students' privacy and are shared with classmates offline.

Critical media literacy in the Second Machine Age

Critical media literacy instruction now needs to help students create awareness of AI-based analytics that influence what users see on social media. Recent social media use has seen the rise of technologies of the Second Machine Age that use algorithms to dictate social media feeds. Algorithms are formulas performed by computing to complete a task or solve a problem, and in the case of social media, influence what users see (Pennycook & Rand, 2021).

In an algorithm-driven social media world, where young people encounter an unlimited array of uncensored media, L1 language education needs robust strategies to guide youth to uncover the mechanisms inside the black box of AI-assisted information architectures and their hidden attention and behavioural engineering – used to bring users back to websites or apps, engage for longer, or make purchases – in the Second Machine Age. Research has demonstrated how social media newsfeeds can personalise content and manipulate emotions without the users' awareness (Valtonen et al., 2019). Likewise, students need skills to identify fake news, which often aesthetically resembles legitimate news (Pennycook & Rand, 2021). They can be taught how to challenge the assumptions of texts in online echo chambers which reinforce beliefs and ideas that resonate with targeted users based on their digital footprints and how to develop decision-making skills to protect privacy and limit digital surveillance. For example, teachers of young L1 learners can discuss how viral YouTube videos of influencers unboxing commercial products, such as toys or make-up, are a powerful form of advertising to make money from children for toy companies. When children click on these videos, the algorithms will influence their YouTube feed to show them an endless string of similar unboxing videos for mindless consumption.

It is vital for first language educators to acknowledge that algorithms now significantly influence users' digital pathways and the curation of what we read for content personalisation (Eg et al., 2023), functioning like virtual actors encoded with gendered, racial, ageist, sexist, and geographical biases, dominant values, and predictive assumptions about users and the world (Gillespie, 2014). For example, teachers can help students to analyse social media display ads, such as those that contain rigid gender roles, and stereotyped ideas about masculinity or femininity, that appear as sponsored posts or banners on platforms, such as Instagram, Twitter/X, and Facebook, to identify the target audiences and to think about who benefits from the advertising. Teaching students to become aware of how algorithms work – how they are used to build rich profiles of users and to target users with content and advertising – can reduce the extent to which students are manipulated and, relatedly, strengthen their online agency and protect them against risks when they engage in decisions about social media use. Education has an important role to play to increase users' awareness of the decreased privacy associated with media use, particularly given apparent inequalities along socioeconomic lines with digital skills (Cotter & Reisdorf, 2020).

Critical literacy for social media sites: Interrogating power relations

It is important to note that understanding the power of media texts is not entirely new in critical literacy theory. The need to interrogate the exercise of power in mass media has been argued and demonstrated by Fairclough in works going back as far as the 1980s. Fairclough (2001, p. 50) asks, "What is the nature of power relations in media discourse?" He draws attention to how producers of media texts exercise power over consumers, determining how events are represented and what is included or excluded. Since the turn of the millennium, critical media literacy theorists have called for the blurring of binaries, such as popular texts versus canonical texts, out-of-school versus in-school, media versus print, work versus pleasure, to encourage the use of critical literacy skills that are needed for language learners to engage in a broadened range of textual readings (e.g., Alvermann & Hagood, 2000). Critical literacy dispositions can be taught to assist students

to reflect on how social media texts – whether their own posts or those of others – position reader subjectivity. Language learners can be taught how to deconstruct the multimodal language techniques in social media texts and to decipher complex relations of power in gender, race, age, or social class. Text users need to develop a critical understanding of the nature of their own social media textual practices, including the way in which they present themselves to online audiences and how their texts may potentially be used by others. Importantly, social media and conventional print-based texts should be regarded "not as one form being used as a segue to the instruction of another, but each on its own terms" (Alvermann & Hagood, 2000, p. 201).

New risks of AI-based social media

New AI-based social media architectures have post-human power to sustain users' attention, to influence user behaviour, and to monetise through data scraping. Functions such as "like" buttons provide instant gratification while personal recommender systems manipulate what users see online. These power relations work in favour of large technology companies and commercial interests, while commodifying human attention, spending, and leisure time (Kozyreva et al., 2020). These AI-driven power relations covertly challenge attention and cognitive control, reducing user agency and exploiting human weaknesses, requiring more sophisticated understandings of the social construction of texts and their means of production and circulation. Human decision-making is now delegated to algorithms which often have unexpected consequences that are shrouded in a lack of transparency (Kozyreva et al., 2020). More recently, social media sites, such as Quora, SnapChat, and others, now have AI chatbots or interactive agents that have rapidly expanded in online worlds since 2016. AI systems involving intelligent human-computer interaction, such as Sage and Chat GPT, are used on social media platforms to respond to users' questions and give advice that simulates human conversation (Adamopoulou & Moussiades, 2020). These chatbots offer no accountability, do not reference the sources of their information, nor take responsibility for outcomes arising from the use of their content.

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How to use social media in L1 language teaching and practice

L1 language educators have new opportunities to explore the productive use of social media texts to guide authentic critical literacies in the language curriculum. A fundamental purpose of education from a critical perspective is to teach forms of textual critique – to teach students how to interrogate texts that reproduce forms of oppression – and to discerningly read and interpret the world, whether online or offline. Domination is constituted through the ways in which ideologies and technologies are brought together in social relations that silence people, and language educators can play a vital role in illuminating asymmetries of power in society and social media spaces, making visible the histories, cultural influences, and algorithmic mechanisms that limit personal voice and agency. Rather than seeing social media as the enemy, language educators can draw on the experiences that students bring to the classroom, inviting thoughtful and inclusive discussion, confirmation, and legitimisation (Freire, 1985). They can empower students to understand sophis-

ticated uses of language and the invisible attention-engineering technologies of the internet (see Valtonen et al., 2019) to make visible the values and hopes of marginalised and oppressed groups. In this way, L1 educators can "make the political more pedagogical" (Giroux, 1985, p. xxi).

While much of critical literacy has focused on discourse or verbal texts (words), a noticeable feature of social media is that its discourses are multimodal, particularly very visual, with digital imagery becoming exponentially more prominent in contemporary media texts (Fairclough, 2001). For example, YouTube videos contain moving imagery, audio, gestures, and animations, with meta-textual comments on posted videos also contributing to the video in an interconnected way. Visual meanings can contradict, enhance, or mutually reinforce the verbal text and are no less significant for the user's ability to grasp textual meanings than the words. Rather than passively accepting ideas and their visual representation on social media, language educators can guide students to actively challenge social media representations mode by mode. For example, L1 teachers of adolescents can refer to images and text from familiar celebrities on social media and deconstruct the meanings of social media posts in class using multimodal frameworks. Teachers can ask students to tell them about what is shown or represented in the posts, both visually and in the written text, interpret the connotative meanings (van Leeuwen, 2005), and identify missing perspectives.

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Conclusion

So do we need a new critical literacy? While the purpose of critical literacy is still fundamentally the same, L1 educators have an opportunity to expand critical media literacy pedagogy to uncover the post-human power relations in social media. In an era in which youth find themselves in social media environments that are often still poorly regulated by governments, teachers can assist students to use social media in mindful ways. They can use examples from popular texts that students are familiar with for multimodal analysis and teach students to recognise manipulation, to exercise agency, to evaluate sources, and to manage online attention with self-control. Students can be provided with decision aids to navigate social media interaction, adapt social media use to support personal goals, filter false information, and apply rules for data privacy (Kozyreva et al., 2020). Teachers can support adolescents to reflect on the ways in which they might participate in their own oppression, to examine the psychological effects of behavioural engineering in the advertising posts that fill their media feeds, and to actively refuse to follow technological forms of domination. In this and other similar ways, L1 teachers can apply critical literacy pedagogies to create spaces for students to have an active voice and presence towards transformational social agency.

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