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# AI Literacy and Algorithmic Awareness in Communication Education: A Conceptual Framework for Preparing Students for AI-Mediated Society

**Yao Qin**[1*]

[1]School of Communication, University of Leeds, Leeds ,LS2 9JT, United Kingdom
Corresponding Author*: Yao Qin E-mail: yaoqin930101@gmail.com

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**ABSTRACT**

Artificial intelligence is increasingly reshaping how people search for information, produce messages, evaluate sources, interact with media platforms, and participate in public communication. In this context, communication education must move beyond traditional media literacy and digital literacy to include AI literacy and algorithmic awareness. Although existing studies have conceptualized AI literacy as a set of competencies for understanding, using, evaluating, and ethically engaging with AI technologies, less attention has been paid to how AI literacy should be integrated into communication education. This conceptual article proposes a framework for AI literacy in communication education, focusing on three dimensions: critical understanding of AI-mediated communication, algorithmic awareness in platform societies, and ethical responsibility in human–AI communication. Drawing on human–machine communication, AI literacy, media literacy, and critical algorithm studies, the article argues that communication students need not only technical knowledge of AI but also critical, ethical, and communicative competencies for understanding how AI shapes visibility, authorship, credibility, persuasion, and public discourse. The article contributes to the field by repositioning AI literacy as a core component of communication education and by offering a curriculum-oriented framework for future teaching and research.

## 1. Introduction

Artificial intelligence has become deeply embedded in contemporary communication environments. AI systems now assist with writing, translation, content recommendation, information retrieval, advertising, audience targeting, automated journalism, and social media moderation. These changes indicate that AI is not merely a technical tool but part of the infrastructure through which communication is produced, circulated, and interpreted (Guzman & Lewis, 2020; Hancock et al., 2020).

For communication education, this shift creates an urgent pedagogical challenge. Students in journalism, public relations, advertising, digital media, and communication studies increasingly encounter AI systems in both professional and everyday contexts. They are expected to use AI tools productively, evaluate AI-generated content critically, and understand how algorithms influence public visibility and audience engagement (Long & Magerko, 2020; Ng et al., 2021).

Traditional media literacy remains important, but it is no longer sufficient on its own. Media literacy has historically emphasized the ability to access, analyze, evaluate, and create media messages. However, AI-mediated environments require students to understand not only media content but also automated systems that generate, rank, recommend, personalize, and moderate communication (Kitchin, 2017; Livingstone, 2004).

This article argues that AI literacy should become a core component of communication education. Rather than treating AI literacy as a purely technical skill, the article conceptualizes it as a communicative, critical, and ethical competency. Communication students need to understand how AI affects authorship, credibility, visibility, persuasion, audience segmentation, and responsibility in contemporary society (Bucher, 2012; Guzman & Lewis, 2020).

The purpose of this article is to develop a conceptual framework for integrating AI literacy and algorithmic awareness into communication education. The framework is organized around three dimensions: critical understanding of AI-mediated communication, algorithmic awareness in platform societies, and ethical responsibility in human–AI communication. These dimensions are intended to support curriculum development, classroom practice, and future empirical research (Long & Magerko, 2020; Ng et al., 2021).

## 2. Literature Review

### AI Literacy

AI literacy generally refers to the competencies that enable individuals to understand, use, evaluate, and critically engage with artificial intelligence. Long and Magerko (2020) define AI literacy as a set of competencies that allows people to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool in different contexts. This definition is especially useful for communication education because it emphasizes not only technical understanding but also human–AI interaction.

Ng et al. (2021) further conceptualize AI literacy through four broad aspects: knowing and understanding AI, using and applying AI, evaluating AI, and understanding ethical issues related to AI. These dimensions suggest that AI literacy should not be reduced to coding or technical operation. Instead, it should include conceptual knowledge, practical use, critical evaluation, and ethical reflection (Ng et al., 2021).

In educational contexts, AI literacy is increasingly discussed as a necessary competency for students and teachers. Chiu et al. (2021) argue that AI education should prepare learners to understand AI concepts, applications, and social implications. Similarly, Ng et al. (2023) emphasize that teachers need AI-related digital competencies in order to respond to the changing demands of teaching, learning, and assessment.

Although AI literacy research has developed rapidly, much of the literature focuses on general education, computer science education, or digital competence. Communication education requires a more field-specific approach because communication students must understand AI not only as a technology but also as a system that shapes media production, public discourse, interpersonal interaction, persuasion, and social power (Guzman & Lewis, 2020; Hancock et al., 2020).

**Human – Machine Communication and AI-Mediated Communication**

Human–machine communication provides an important theoretical foundation for AI literacy in communication education. Guzman and Lewis (2020) argue that AI challenges traditional communication theory because machines can increasingly function as communicative agents rather than passive channels. This means that communication scholars must reconsider what counts as a communicator, a message, and a medium in AI-mediated environments.

AI-mediated communication also changes interpersonal and professional communication. Hancock et al. (2020) define AI-mediated communication as interpersonal communication in which an intelligent agent operates on behalf of a communicator by modifying, augmenting, or generating messages. This definition is important because it shows that AI can participate in message production rather than simply transmit human messages.

For communication students, this creates new questions about authorship and responsibility. When a student, journalist, public relations practitioner, or advertiser uses AI to draft or revise a message, the final text may reflect both human intention and algorithmic suggestion. Therefore, AI literacy must include the ability to identify and evaluate hybrid forms of authorship (Hancock et al., 2020; Guzman & Lewis, 2020).

Human–machine communication also raises questions about how people perceive AI systems. People may treat chatbots, recommendation systems, virtual assistants, and generative AI tools as tools, partners, sources, or social actors depending on the context. Communication education should therefore help students analyze not only what AI systems do but also how people interpret and relate to them (Guzman & Lewis, 2020; Nass & Moon, 2000).

**Algorithmic Awareness**

Algorithmic awareness refers to people's understanding of how algorithms influence what they see, receive, and experience in digital environments. In platform societies, algorithms shape newsfeeds, search results, recommendations, advertisements, and social visibility. Therefore, communication students must understand that public communication is increasingly structured by automated ranking and recommendation systems (Bucher, 2012; Kitchin, 2017).

Bucher (2012) shows that algorithmic power is closely connected to visibility. In social media environments, visibility is not simply the result of user choice; it is shaped by software processes that determine what becomes prominent and what remains hidden. This insight is highly relevant for communication education because media professionals often produce content for algorithmically governed environments (Bucher, 2012).

Kitchin (2017) argues that algorithms should be studied critically because they are embedded in social, institutional, and political contexts. Algorithms are not neutral technical objects; they are

shaped by data, design decisions, commercial interests, and institutional values. This perspective helps communication students understand why algorithmic systems must be analyzed as part of broader social power relations (Kitchin, 2017).

Research on algorithmic skills also shows that people vary in their ability to understand and evaluate algorithmic systems. Hargittai et al. (2020) note that studying people's algorithm skills is methodologically challenging because algorithms are often invisible and difficult for users to observe directly. This means that communication education should make algorithmic processes more visible and teach students how to question them critically (Hargittai et al., 2020).

### Media Literacy and the Need for Expansion

Media literacy has long been central to communication education. Livingstone (2004) defines media literacy as the ability to access, analyze, evaluate, and create messages across contexts. This definition remains valuable, but AI-mediated communication requires an expanded literacy model that includes automated content generation, algorithmic curation, datafication, and platform governance (Livingstone, 2004; Kitchin, 2017).

In traditional media literacy, students often analyze media texts, ownership structures, representation, bias, and audience interpretation. In AI-mediated environments, students must also analyze how automated systems shape communication before messages reach audiences. For example, a news story, advertisement, or social media post may be technically available online but practically invisible if it is not selected by recommendation algorithms (Bucher, 2012; Gillespie, 2014).

AI literacy therefore extends media literacy by adding attention to computation, data, automation, and human–machine interaction. However, this does not mean communication students must become computer scientists. Instead, they need enough conceptual and critical understanding to ask informed questions about how AI systems produce meaning, organize visibility, and influence social behavior (Long & Magerko, 2020; Ng et al., 2021).

The integration of AI literacy into communication education should therefore combine media analysis, platform analysis, ethical reasoning, and practical engagement with AI tools. Such integration can help students understand both the opportunities and risks of AI-mediated communication in professional and civic life (Guzman & Lewis, 2020; Hancock et al., 2020).

## 3. A Conceptual Framework for AI Literacy in Communication Education

This article proposes a three-dimensional framework for AI literacy in communication education. The framework includes critical understanding of AI-mediated communication, algorithmic awareness in platform societies, and ethical responsibility in human–AI communication. These dimensions are interconnected and together provide a field-specific approach to preparing communication students for AI-mediated society (Long & Magerko, 2020; Ng et al., 2021).

### Critical Understanding of AI-Mediated Communication

The first dimension is critical understanding of AI-mediated communication. Communication

students should understand how AI systems participate in message production, editing, translation, personalization, and interaction. This includes recognizing that AI can function as a writing assistant, recommendation mechanism, automated source, conversational partner, or persuasive tool (Guzman & Lewis, 2020; Hancock et al., 2020).

This dimension requires students to examine the changing nature of authorship. In AI-assisted writing, the final message may be produced through collaboration between human users and machine-generated suggestions. Students should therefore learn to ask who is responsible for the message, how AI shaped the wording, and whether AI involvement should be disclosed (Hancock et al., 2020; Long & Magerko, 2020).

Critical understanding also requires attention to credibility. AI-generated content can appear fluent, professional, and persuasive even when it is inaccurate or misleading. Communication students should therefore learn that surface fluency is not the same as reliability, and that AI-generated claims require verification through credible sources and contextual judgment (Ng et al., 2021; Pennycook & Rand, 2021).

In classroom practice, this dimension can be taught through comparative analysis. Students may compare human-written and AI-generated news summaries, public relations statements, social media captions, or campaign messages. Through this process, they can evaluate accuracy, tone, bias, source transparency, and ethical implications (Long & Magerko, 2020; Guzman & Lewis, 2020).

**Algorithmic Awareness in Platform Societies**

The second dimension is algorithmic awareness. Communication students should understand that digital visibility is increasingly shaped by algorithms. Platforms do not simply host communication; they organize attention by ranking, recommending, filtering, and personalizing content (Bucher, 2012; Gillespie, 2014).

Algorithmic awareness helps students understand why some messages circulate widely while others remain invisible. In journalism, public relations, advertising, and social media management, communicators often create content for algorithmically mediated audiences. Students should therefore learn how platform logics influence content strategy, audience measurement, engagement practices, and public visibility (Bucher, 2012; Kitchin, 2017).

However, algorithmic awareness should not become merely a strategy for increasing reach. Communication education should also teach students to question the social consequences of algorithmic visibility. If platforms reward emotional intensity, polarization, or engagement-driven content, communicators must consider whether optimizing for algorithms conflicts with professional ethics and public responsibility (Gillespie, 2014; Kitchin, 2017).

In classroom practice, students can analyze recommendation systems, search results, trending topics, and social media feeds. They can examine how platform design influences what users see and how users interpret social reality. Such activities help students connect everyday platform experience with broader questions of algorithmic power (Bucher, 2012; Hargittai et al., 2020).

**Ethical Responsibility in Human – AI Communication**

The third dimension is ethical responsibility. AI literacy in communication education must include ethical reflection on transparency, bias, privacy, accountability, manipulation, and social harm. Because communication professionals may use AI to influence public attitudes and behavior, ethical responsibility is central to AI-mediated communication (Ng et al., 2021; Floridi et al., 2018).

Transparency is one important ethical issue. When AI is used to generate news, advertising, public relations messages, educational materials, or social media content, audiences may have a legitimate interest in knowing how the content was produced. Communication students should therefore discuss when AI use should be disclosed and how disclosure should be communicated clearly (Hancock et al., 2020; Diakopoulos, 2015).

Bias is another important issue. AI systems may reproduce biases from training data, design assumptions, or institutional contexts. Communication students should understand that AI-generated messages and algorithmic recommendations may reflect unequal social representations rather than neutral outputs (Noble, 2018; Kitchin, 2017).

Privacy also requires attention. AI-mediated communication often depends on data collection, profiling, and personalization. In advertising, political communication, health communication, and platform analytics, data-driven personalization may create risks of surveillance, manipulation, and unequal treatment. Communication students should therefore learn to evaluate whether data practices respect user autonomy and social responsibility (Zuboff, 2019; Floridi et al., 2018).

In classroom practice, ethical responsibility can be taught through case studies. Students may analyze AI-generated news errors, biased search results, targeted advertising controversies, chatbot disclosure problems, or automated moderation failures. These cases can help students connect AI literacy with professional decision-making and public accountability (Diakopoulos, 2015; Noble, 2018).

## 4. Implications for Communication Curriculum

Integrating AI literacy into communication education does not require replacing existing media literacy, journalism ethics, public relations writing, advertising strategy, or digital media courses. Instead, AI literacy can be embedded across the curriculum. This approach recognizes that AI is not a separate topic but a cross-cutting force that affects many areas of communication practice (Long & Magerko, 2020; Ng et al., 2021).

In journalism education, AI literacy can help students evaluate automated journalism, AI-assisted reporting, source verification, and algorithmic news distribution. Students should learn how AI can support reporting while also creating risks related to accuracy, transparency, and editorial responsibility (Diakopoulos, 2015; Lewis et al., 2019).

In public relations education, AI literacy can help students examine automated content generation, audience analytics, reputation monitoring, and crisis communication. Students should learn that AI tools may improve efficiency but also raise questions about authenticity, stakeholder trust, and ethical persuasion (Hancock et al., 2020; Floridi et al., 2018).

In advertising education, AI literacy can support critical analysis of personalization, targeting,

consumer profiling, and algorithmic persuasion. Students should be able to evaluate how AI-driven advertising practices influence consumer autonomy, privacy, and social inequality (Zuboff, 2019; Noble, 2018).

In general communication theory courses, AI literacy can help students rethink core concepts such as sender, receiver, medium, message, feedback, noise, credibility, and agency. Human–machine communication shows that AI challenges traditional assumptions about who or what participates in communication (Guzman & Lewis, 2020; Nass & Moon, 2000).

## 5. Future Research Directions

Future research should empirically examine how communication students understand AI-mediated communication. Surveys could measure students' AI literacy, algorithmic awareness, perceived competence, ethical concern, and willingness to use AI tools in professional communication. Such studies can build on existing AI literacy and algorithmic skills research while adapting measures to communication education contexts (Hargittai et al., 2020; Ng et al., 2021).

Experimental studies could examine how AI literacy training affects students' ability to identify AI-generated content, evaluate source credibility, detect bias, and make ethical decisions. These studies would help determine whether AI literacy interventions produce measurable improvements in critical communication competencies (Long & Magerko, 2020; Pennycook & Rand, 2021).

Qualitative research could explore how students and teachers make sense of AI tools in communication classrooms. Interviews, focus groups, and classroom observations could reveal how AI use is negotiated in writing assignments, media production, journalism practice, and professional ethics discussions (Guzman & Lewis, 2020; Ng et al., 2023).

Comparative research is also needed across cultural and institutional contexts. AI literacy may be understood differently depending on national education systems, media environments, platform regulations, and public trust in technology. Communication education should therefore avoid treating AI literacy as a universal checklist and instead examine how it is shaped by local social conditions (Kitchin, 2017; Livingstone, 2004).

Finally, future studies should investigate the long-term professional implications of AI literacy. As communication industries increasingly adopt AI tools, graduates will need competencies that combine practical tool use with critical judgment and ethical responsibility. Research should examine how AI literacy influences employability, professional identity, and communication ethics (Lewis et al., 2019; Floridi et al., 2018).

## 6. Conclusion

AI literacy is becoming essential for communication education because artificial intelligence now shapes how messages are produced, circulated, evaluated, and trusted. Communication students need to understand AI not only as a technological tool but also as a communicative force that affects authorship, visibility, credibility, persuasion, and public responsibility (Guzman & Lewis, 2020; Hancock et al., 2020).

This article proposed a conceptual framework for AI literacy in communication education based on three dimensions: critical understanding of AI-mediated communication, algorithmic awareness in platform societies, and ethical responsibility in human–AI communication. These dimensions show that communication education must move beyond technical training and develop students' critical, ethical, and social understanding of AI (Long & Magerko, 2020; Ng et al., 2021).

For the Journal of AI Communication and Society, this topic is especially relevant because it connects AI studies with communication theory, media education, platform society, and public responsibility. As AI becomes more deeply embedded in communication systems, preparing students for AI-mediated society is not only an educational task but also a democratic and ethical necessity (Bucher, 2012; Kitchin, 2017).

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