

Reconceptualising academic reading-to-write in the age of generative AI: an AI-mediated knowledge construction framework

Yang JIAO^{1,*}, Jingjing HUANG²

1. School of Foreign Studies, China Three Gorges University, Yichang 443002, China

2. Liangdao Street Middle School, Wuhan 430060, China

*Corresponding Author

Email address: jiaosunny@hotmail.com

Abstract: Generative artificial intelligence (GenAI) research has largely focused on text generation, feedback, and writing enhancement, overlooking the cognitive and epistemic processes underlying academic knowledge construction. This paper proposes the AI-mediated knowledge construction (AMKC) framework to explain how GenAI may support graduate students' reading-to-write development. Integrating academic literacies, reading-to-write research, sociocultural theory, and dialogic approaches, the framework positions GenAI as a cognitive mediator and dialogic partner across dialogic reading, knowledge transformation, source integration, disciplinary meaning-making, critical reflection, and academic writing. Six theoretical propositions elaborate the mechanisms of AI-mediated literacy development, while pedagogical implications and a future research agenda address implementation and empirical validation. By shifting attention from writing assistance to knowledge construction, AMKC provides a theoretically grounded account of GenAI-mediated academic literacy development in higher education.

Keywords: academic literacies; reading-to-write; knowledge construction; human-AI dialogue

1 Introduction

Through natural language interaction, GenAI can generate and reframe meaning, participate in knowledge construction, and challenge established understandings of literacy and authorship [1]. From an Academic Literacies perspective, academic writing involves participation in disciplinary practices through which learners critically engage with texts, construct knowledge, and communicate within academic communities [2]. For graduate students, this requires extensive reading, evidence evaluation and synthesis, and the transformation of disciplinary knowledge into coherent arguments. Reading-to-write therefore entails recursive processes of comprehension, evaluation, synthesis, and textual construction [3]. Research on GenAI in language education nevertheless remains fragmented in three respects: it focuses mainly on writing assistance while overlooking the knowledge transformation underlying academic texts [4]; it gives limited attention to GenAI across the full reading-to-write trajectory [5]; and it lacks a theoretically grounded explanation of how AI-mediated interaction supports literacy development beyond technological optimism and academic-integrity concerns [6].

To fill these research gaps, this paper reconceptualises reading-to-write practices in academia as AI-mediated

knowledge construction and positions GenAI as a cognitive, dialogic, and scaffolding mediator throughout the entire literacy workflow. Drawing on Academic Literacies theory, reading-to-write scholarship, sociocultural perspectives on mediated learning [7], and dialogic theories of learning [8], the framework conceptualises reading-to-write as a multi-stage process through which learners progressively engage with disciplinary knowledge and transform it into academic texts.

2 Theoretical foundations

Four perspectives ground the AMKC framework in academic literacies as the epistemic practice of disciplinary meaning-making.

2.1 Academic literacies and disciplinary meaning-making

Academic literacies reconceptualise writing as socially situated meaning-making shaped by power and contestation. Graduate students need participation in disciplinary meaning-making; reading becomes epistemic activity constructing knowledge. Skills-based approaches cannot capture power-laden practices or unequal access to disciplinary norms. The sustained, context-sensitive dialogue with GenAI acts as scaffolding that guides learners beyond decoding toward disciplinary meaning construction.

2.2 Reading-to-write as knowledge transformation

Reading-to-write is recursive: reading and writing mutually construct meaning. Knowledge-telling reproduces sources, whereas knowledge-transforming involves restructuring information. Nevertheless, L2 writers often regress under heavy cognitive overload. Writing entails evaluating and synthesizing multiple texts via iterative shifts between source materials and developing drafts, requiring discipline-embedded pedagogy [9].

2.3 Sociocultural mediation and scaffolding

Sociocultural theory locates learning in mediation within the zone of proximal development (ZPD). Through internalization, external support becomes an internal resource by restructuring cognitive activity (Lantolf, 2000). Collective scaffolding may be co-constructed [10]. AMKC treats GenAI as a cultural artefact providing graduated scaffolding that externalizes cognitive processes and fades as students gain autonomous control over knowledge construction. It must promote internalization, not dependency, while learners evaluate AI's biases and cultural situatedness [11].

2.4 Dialogic learning and knowledge construction

Dialogism locates meaning among multiple voices and ideological positions. Exploratory talk constructs understanding through justification and challenge [12], supporting higher-order thinking [13]. A "dialogic space" sustains difference rather than premature resolution [14]. By generating alternatives and challenges, GenAI may function as a non-human interlocutor. AMKC thus frames reading-to-write as dialogue with disciplinary texts, communities, and AI-mediated perspectives.

3 The AI-mediated knowledge construction framework

Research often treats GenAI as a feedback and text-production tool, although better feedback does not necessarily improve revision. The AI-mediated knowledge construction (AMKC) framework instead positions GenAI as a cognitive and dialogic partner supporting judgement, metacognition, and exploratory dialogue without replacing teachers. Figure 1 presents seven recursive stages: academic sources, AI-mediated dialogic reading, knowledge transformation, source integration, disciplinary meaning-making, critical reflection, and academic writing.

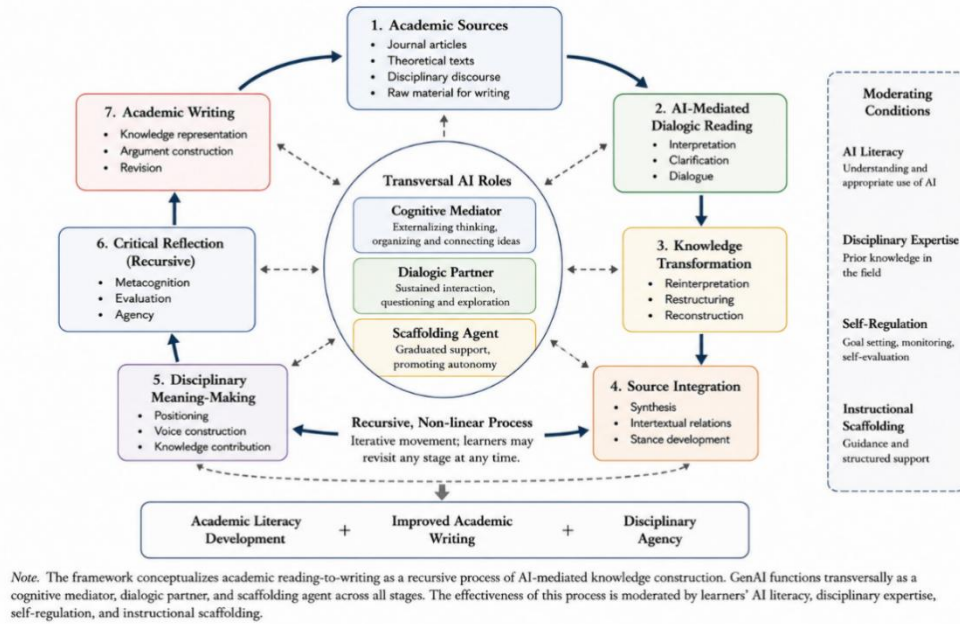


Figure 1. The AI-mediated knowledge construction framework

In AI-mediated dialogic reading, GenAI supports clarification, argument identification, evidence evaluation, and disciplinary interpretation [15]. Knowledge transformation moves learners from knowledge-telling towards reconstruction, with GenAI modelling reformulation while learners retain responsibility for transformation [16]. During source integration, GenAI maps relationships among sources, but learners evaluate and synthesize their content, positions, and epistemologies [17]. Disciplinary meaning-making develops epistemological positioning, academic voice, and knowledge contribution, while recursive critical reflection involves evaluating AI-generated inaccuracies, biases, and limitations. Academic writing makes this knowledge construction visible through AI-supported organization and revision, with instructors retaining disciplinary judgement. Across these stages, GenAI functions as a cognitive mediator, dialogic partner, and scaffolding agent whose assistance fades as learners gain control.

AMKC advances six propositions: academic literacy depends on (1) dialogic engagement; (2) knowledge transformation; (3) critical source integration; (4) epistemological positioning, distinctive academic voice, and knowledge contribution; (5) critical reflection and learner agency; (6) academic writing emerges indirectly from the above recursive cognitive processes, conditioned by AI literacy, disciplinary expertise, self-regulation, language proficiency, task design, and instructional scaffolding.

4 Pedagogical implications

Academic reading-to-write should be organized as an integrated process of AI-mediated knowledge construction rather than isolated reading and writing activities. GenAI ought to support source engagement, dialogic inquiry, knowledge transformation, and full writing development, rather than merely mechanical drafting. Tasks should promote inquiry, synthesis, argumentation, and evidence evaluation, enabling learners to move from knowledge reproduction towards the critical reconstruction of disciplinary ideas. Teachers ought to design human–AI interactions, scaffold disciplinary inquiry, and foster learner autonomy who retain disciplinary and epistemological judgement. Both educators and learners require robust AI literacy, with learners critically evaluating AI-generated information and retaining responsibility for interpretation and decision-making. Academic integrity thus reflects responsible, critical, and agentic engagement with AI-mediated knowledge construction.

5 Future research agenda

Empirical research should test the AMKC framework through three agendas. First, future research could investigate whether its staged processes comprises separate but interconnected components and whether stage-based AI mediation differs from drafting-only support. Second, subsequent studies should identify which forms of human–AI dialogue promote knowledge transformation and which encourage superficial paraphrasing or over-reliance on AI. Third, future research should determine how learner attributes (AI literacy, disciplinary expertise, language proficiency, self-regulation), pedagogical scaffolding, and institutional settings shape AI-mediated knowledge construction. Collectively, these proposed agendas can refine AMKC with empirical evidence across varied learner groups, assignment types and institutional settings.

6 Conclusion

The AMKC framework reconceptualises academic writing as AI-mediated knowledge construction, integrating academic literacies, reading-to-write, sociocultural mediation, and dialogic learning. GenAI is positioned not as a text-production tool but as a site for constructing disciplinary voice and critical agency. GenAI cannot replace human cognition, teacher expertise, or disciplinary judgement; its value depends on task design, learner agency, and safeguards against dependency. AMKC requires empirical validation across contexts. By shifting attention away from text output production to knowledge construction, it provides a theoretical starting point for examining how learners use AI to read, think, and participate in disciplinary communities.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- [1] Lim W M, Gunasekara A, Pallant J L, et al. Generative AI and the future of education: ragnarök or reformation? A paradoxical perspective from management educators[J]. *International Journal of Management Education*, 2023, 21(2):100790.
- [2] Lea M R, Street B V. Student writing in higher education: an academic literacies approach[J]. *Studies in Higher Education*, 1998, 23(2): 157-172.
- [3] Hirvela A. Connecting reading & writing in second language writing instruction[M]. Ann Arbor, MI: University of Michigan Press, 2004.
- [4] Kurt G, Kurt Y. Enhancing L2 writing skills: ChatGPT as an automated feedback tool[J]. *Journal of Information Technology Education*, 2024, 23.
- [5] Farrokhnia M, Latifi S, Papadopoulos P M, et al. Generative AI offers more, but students revise less: comparing the effects of teacher and AI feedback on student essay revisions[J]. *International Journal of Educational Technology in Higher Education*, 2026, 23(1): 1-28.
- [6] Hornberger M, Bewersdorff A, Nerdel C. What do university students know about artificial intelligence? Development and validation of an AI literacy test[J]. *Computers and Education: Artificial Intelligence*, 2023, 5: 100165.
- [7] Vygotsky L S. *Mind in Society: The Development of Higher Psychological Processes*[M]. Cambridge, MA: Harvard University Press, 1978.
- [8] Bakhtin M M. *The Dialogic Imagination: Four Essays*[M]. Holquist M, ed.; Emerson C, Holquist M, trans. Austin: University of Texas Press, 1981.
- [9] Wingate U. Using academic literacies and genre-based models for academic writing instruction: A 'literacy' journey[J]. *Journal of English for Academic Purposes*, 2012, 11(1): 26-37.
- [10] Donato R. Collective scaffolding in second language learning[M]//Lantolf J P, Appel G. *Vygotskian Approaches*

to Second Language Research[M]. Norwood, NJ: Ablex, 1994: 33-56.

[11] Lantolf J P. Sociocultural Theory and Second Language Learning[M]. Oxford: Oxford University Press, 2000.

[12] Mercer N. Words and Minds: How We Use Language to Think Together[M]. London: Routledge, 2000.

[13] Mercer N, Howe C. Explaining the dialogic processes of teaching and learning: The value and potential of sociocultural theory[J]. Learning, Culture and Social Interaction, 2012, 1(1): 12-21.

[14] Wegerif R. Dialogic education and technology: Expanding the space of learning[M]. New York: Springer, 2007.

[15] Shang J, Huang Y, Xu M, Huang Y, Shen X, Wang G, et al. Competition between human learners and ChatGPT: enhancing university EFL students' reading comprehension and critical thinking through competitive questioning[J]. Computer Assisted Language Learning, 2025: 1-35.

[16] Scardamalia M, Bereiter C. Knowledge telling and knowledge transforming in written composition[M]// Rosenberg S. Advances in applied psycholinguistics. 1987: 142-175.

[17] Cumming A, Lai C, Cho H. Students' writing from sources for academic purposes: A synthesis of recent research[J]. Journal of English for Academic Purposes, 2016, 23: 47-58.

About the author

Yang Jiao (born in November 1988, Jingzhou, Hubei, China) is a Ph.D., Lecturer, and Master's Supervisor at the School of Foreign Studies, China Three Gorges University, China. Her research interests include Computer-Assisted Language Learning (CALL), intercultural communication, and English for Academic Purposes (EAP).

Jingjing Huang (born in November 1985, Jingzhou, Hubei, China) holds an M.Ed. in English Education and is an English teacher at Liangdao Street Middle School, Wuhan, China. Her research interests include intercultural communication and English language teaching, with a particular focus on integrating intercultural competence into classroom practice.