

SOCIOLINGUISTICS SYMPOSIUM 25

Curtin University
Perth, 24-27 June 2024



Generative Artificial Intelligence and Sociolinguistics

Colloquium Abstract

The rapid evolution of large language models in generative artificial intelligence (genAI) has ushered in a new era of sociolinguistic inquiry, reshaping the landscape of communication, education, and human-machine interaction. This colloquium brings together six seminal papers that probe the intricate relationship between genAI and various sociolinguistic phenomena, including heteroglossia, pragmatics, interculturality, translanguaging, multimodality, and knowledge-building discourse. Tang begins the colloquium by highlighting the heteroglossic nature of genAI and its potential for fostering dialogic interactions in education. Rappa and colleagues analyze the congruence between pragmatic communication principles and human-AI interactions in a high school classroom. Chen and Lin assess ChatGPT's capability to reflect cultural nuances in educational settings. Siu and Lin investigate the innovativeness of plurilingual tertiary students' multimodal content creation in AI-embracing EMI classrooms. Lim discusses the practices and implications of using genAI for digital multimodal composing. Lastly, Tan and Teo explore the role of genAI in scaffolding and analyzing knowledge-building discourse among learners. Collectively, these studies underscore the need for critical awareness in the deployment of AI tools, emphasizing both their transformative potential and the inherent challenges. As we approach an AI-integrated future, this colloquium highlights how genAI interacts with and impacts the sociolinguistic aspects of education.

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1. Untangling the heteroglossic nature of generative AI: Whose voices is it?

Kok-Sing Tang, Curtin University

In the current hype around AI, many technologists predict that classrooms may be replaced by one-to-one AI tutors. Unfortunately, this techno-centric view overemphasizes the use of generative AI in disseminating authoritative knowledge to individuals, and misses its potential to engage in meaningful dialogue with people and communities.

According to Bakhtin (1981), language use is inherently dialogic as a multitude of voices are incorporated through “a link in the chain of speech communication” between individuals. This paper explores how the use of generative AI can be considered heteroglossic, and the analytical and pedagogical implications of viewing AI as dialogic for sociolinguistic research.

First, as large language models (LLMs) are trained on big data from vast sources, to what extent does the juxtaposition of these sources and their embedded voices contribute to the heterogeneity of language produced by AI? Second, to what extent is the output generated by AI a co-construction between it and the user within a continuous chain of texts? These questions are examined in relation to Bakhtin’s theoretical concept of heteroglossia and illustrated through an empirical analysis of high school students’ interaction with ChatGPT in the classroom.

The paper concludes it is crucial to understand the voice of the AI is not its own, but a complex collection of voices appropriated from users interacting with a discourse community. Viewing AI as a dialogic agent opens up the possibility of questioning its multiple sources and critiquing its output. It can also shape our educational vision and practice of using AI to promote heteroglossic dialogue in the classroom, rather than relying on it as a monologic and authoritative source of knowledge.

Reference:

Bakhtin, M. M. (1981). *The dialogic imagination: four essays*. University of Texas Press.

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2. Conversations with AI: Do pragmatic principles still apply?

Natasha Anne Rappa, Murdoch University

Grant Cooper, Curtin University

Karen Nonis, Curtin University

Martin Cooper, Curtin University

Craig Sims, Curtin University

Kok-Sing Tang, Curtin University

Generative Artificial Intelligence (GenAI) Large Language Models (LLMs) were introduced globally in 2023 by OpenAI and later Google and Microsoft. Questions have been raised around the interactions with AI as a more knowledgeable inanimate other assisting with gathering information relevant and meaningful to the user. The current study implemented in several classrooms in a Western Australian high school across several subject areas in 2023 explores this interaction through the lens of Paul Grice's (1989) work. Pragmatic principles shed light on how people communicate effectively and the extent to which adherence to and departure from these principles are visible in students' interactions with GenAI LLMs. Analysis of data on students' interactions with GenAI using the Grice's maxims of quality, quantity, relation and manner was employed. The findings indicate that students in general complied with the maxims of quality and relation, and when they did so, this resulted in GenAI LLMs yielding relevant information in its responses to students' questions. However, there were variations in students' compliance with the maxims of quantity and manner. This suggests differences in how GenAI LLMs is perceived by the user—a tool or an intelligent being, differences in adherence or lack thereof to the norms of classroom talk and students' uncertainty around the extent to which there was a need to set the context for the GenAI LLMs and around its affordances and limitations. These findings underscore the relevance of existing pragmatic principles for analysing conversations with GenAI and the potential for identifying interaction patterns with GenAI that differ from human-to-human conversations.

Reference:

Grice, P. (1989). *Studies in the Way of Words*. Harvard University Press.

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3. AI and interculturality in an academic task in an education course

Qinghua Chen, Education University of Hong Kong

Angel Mei Yi Lin, Education University of Hong Kong

In recent years, there has been a growing interest in exploring the use of AI-based tools, such as ChatGPT, in the field of education. While these tools have the potential to enhance interactivity and learning experiences, scholars have raised concerns about their inherent biases and the potential for perpetuating dominant ideologies. To investigate the feasibility of using ChatGPT to promote interculturality in educational settings, this study recruited a participant from a university in Hong Kong who was studying educational psychology. The participant's coursework assignment involved creating counseling session role-playing scripts. The researchers took inspiration from this assignment and used ChatGPT to generate the scripts, engaging in collaborative discussions with the AI to align them with the assignment's expectations.

Initially, the scripts generated by ChatGPT emphasized individualism and autonomy, which may not align with the cultural context of Hong Kong, where parent-child dynamics differ from European norms. In subsequent iterations, the researchers strategically manipulated prompts, incorporating keywords that highlighted cultural nuances and providing information about the cultural background. The goal was to assess whether ChatGPT could exhibit cultural responsiveness in generating counseling scripts and explore interculturality. The findings underscore the importance of critical awareness in consuming and interpreting AI-generated text, as well as the need for students to develop this skill set. Students should be equipped with the ability to engineer prompts that promote interculturality in AI-generated interactions. This has implications for incorporating AI into university education assessment and can be achieved through sharing and briefing sessions that provide examples like those used in this study (Chang et al., 2023).

We conclude, while AI tools like ChatGPT have potential educational applications, it is crucial to approach their use with critical awareness and an understanding of the cultural context. By carefully engineering prompts and fostering interculturality, students can effectively utilize AI tools in their learning experiences.

Reference:

Chang, D. H., Lin, M. P.-C., Hajian, S., & Wang, Q. Q. (2023). Educational Design Principles of Using AI Chatbot That Supports Self-Regulated Learning in Education: Goal Setting, Feedback, and Personalization. *Sustainability*, 15(17), 12921. <https://doi.org/10.3390/su151712921>

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4. Disrupting monoglossic classrooms with the Multimodalities-Entextualization

Cycle: *Translanguaging and trans-semiotizing* in AI-embracing learning and assessment in EMI higher education

Phoebe Siu, The Hong Kong Polytechnic University

Angel M. Y. Lin, Education University of Hong Kong

Digital language technologies provide both affordances and constraints to uphold the harmony between ordinariness and innovation in sociolinguistics interwoven with artificial intelligence (AI). The widespread access of generative AI (GenAI) software, such as ChatGPT, provides user-friendly visual and textual content creation for everyday life and academic registers and genres. The embedding nature of GenAI tools within everyday mobile devices and familiar search engines has guaranteed technology-enhanced academic and communicative productivity across dynamic language practice. However, on the other hand, such innovation seems to put ordinariness in human nature at stake when plurilingual, pluricultural teachers and students may romanticise their monolingual meaning-making experience with GenAI and inadvertently invent a sociolinguistic Other (Said, 2003) for EMI higher education. This colloquium paper investigates the innovativeness of tertiary students' content creation in AI-embracing EMI classrooms. To leverage students' strategic and ethical use of GenAI for translanguaging and trans-semiotizing learning and assessment in EMI higher education, the Multimodalities-Entextualization Cycle (MEC) (Lin, 2016) is introduced as a transformative curriculum genre in a 13-week EAP classroom designed for 86 plurilingual students in Hong Kong. Data generation conducted in this participatory action research (PAR) focuses on tracing how the MEC may potentially (1) co-create safe spaces for mobilizing plurilingual resources with GenAI tools and (2) raise critical social semiotic/ multimodality awareness in AI-embracing EMI higher education. Through embracing the innovativeness of AI with the MEC, tertiary students in EMI higher education gain access to dominant symbolic resources while engaging in translingual and multimodal, multisensory knowledge-making. This paper explores the MEC's potential to challenge monoglossic educational spaces with a dual focus on ordinariness and innovation in EMI higher education in Hong Kong.

Reference:

Lin, A. M. Y. (2016). *Language across the curriculum & CLIL in English as an Additional Language (EAL) Contexts: Theory and practice*. Singapore: Springer.

Said, E. W. (2003). *Orientalism*. Penguin Classics.

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5. Generative artificial intelligence (GAI) and digital multimodal composing: Practices and implications

Fei Victor Lim, National Institute of Education, Nanyang Technological University

Generative artificial intelligence (GAI) tools, such as ChatGPT, have recently garnered significant attention from scholars and educators worldwide (Bishop, 2023). My presentation adopts the social semiotic analytical lens of 'semiotic technologies' to examine the design, usage, and the socio-cultural context (Djonov & van Leeuwen, 2017) in which GAI is used in the classroom (Lim, 2021) by exploring the capabilities of GAI tools for new writing (van Leeuwen, 2008), where students engage in digital multimodal composing (Gilje, 2010; Hafner & Ho, 2020). Drawing on findings from papers in an upcoming special journal issue titled "Digital Multimodal Composing in the Era of Artificial Intelligence," which I co-edit with Øystein Gilje and Emilia Djonov, I discuss the practices of teachers and students using GAI for digital multimodal composing and reflect on the implication as well as their contributions to our understanding of digital literacies.

References:

Bishop, L. (2023). A computer wrote this paper: What ChatGPT means for education, research, and writing. *Research, and Writing (January 26, 2023)*. <https://dx.doi.org/10.2139/ssrn.4338981>

Djonov, E., & Van Leeuwen, T. (2017). The power of semiotic software: A critical multimodal perspective. In Richardson, J., & Flowerdew, J. (Eds.) *The Routledge handbook of critical discourse studies* (pp. 566-581). Routledge.

Gilje, Ø. (2010). Multimodal Redesign in Filmmaking Practices: An Inquiry of Young Filmmakers' Deployment of Semiotic Tools in Their Filmmaking Practice. *Written Communication, 27*(4), 494–522. <https://doi.org/10.1177/074108831037787>

Hafner, C. A., & Ho, W. Y. J. (2020). Assessing Digital Multimodal Composing in Second Language Writing: Towards a Process-Based Model. *Journal of Second Language Writing, 47*, 100710–100714. <https://doi.org/10.1016/j.jslw.2020.100710>

Lim, F. V. (2021). *Designing Learning with Embodied Teaching: Perspectives from Multimodality*. Routledge.

van Leeuwen, T. (2008). New forms of writing, new visual competencies. *Visual studies, 23*(2), 130–135. <https://doi.org/10.1080/14725860802276263>

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6. Using generative AI as a knowledge building discourse companion

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Chew Lee TEO, National Institute of Education, Nanyang Technological University

Alwyn Vwen Yee LEE, National Institute of Education, Nanyang Technological University

Knowledge building is an approach that focuses on collective idea improvement among students, starting with inquiry questions that matter to the students, and subsequent interactions leading to iteratively improvement of ideas. Knowledge building discourse (Scardamalia, 2002) plays a critical role in mediating productive idea improvement. It is a discourse among students that requires not just active listening and critical evaluation of ideas, but also intentional efforts to integrate different ideas to form higher-level ideas. Helping students to interact productively is an important process in knowledge building. This paper examines whether generative AI that uses large language models (e.g., ChatGPT) can be harnessed to support knowledge building discourse (Tan et al, 2023). From a research perspective, traditional methods of analyzing knowledge building discourse are labour-intensive and challenging. For example, is the analysis of unigrams adequate for understanding the general content of a text, or are sequences in texts potentially critical in understanding the ideas discussed? Generative AI with a large language model holds the potential to conduct such analysis. From a pedagogical perspective, the use of prompt engineering could steer the interactions with generative AI such that it functions as a scaffolding tool for students, for example, in learning how to engage in knowledge building discourse. The paper examines the applications of generative AI as a scaffolding tool for knowledge building discourse, as well as a tool for analyzing knowledge building discourse.

References:

Scardamalia, M. (2002). Collective cognitive responsibility for the advancement of knowledge. In B. Smith (Ed.), *Liberal education in knowledge society* (pp. 67–98). Open Court.

Tan, S. C. & Teo, C. L. (2020, October). Supporting knowledge building with analytics and augmented intelligence – Building on the emerging works [Paper presentation]. *Knowledge Building Summer Institute* (Online).