

Human, Peer, and Machine: Rethinking Collaborative Writing and Authorship in IB Schools

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Abstract:

This conceptual paper examines how collaborative writing in International Baccalaureate (IB) classrooms is being reshaped by the availability of generative artificial intelligence (AI) tools. It introduces the notion of human-peer-AI collaborative writing to describe group writing tasks in which students compose texts alongside peers, teachers, and AI systems. Using a sociocultural lens and drawing on research on collaborative and technology-mediated writing, as well as IB guidance on academic integrity and AI, the paper analyses how AI functions as an additional mediational resource in students' zones of proximal development. The paper concludes by proposing three design principles for integrating AI into collaborative writing in ways that remain consistent with IB values.

1. INTRODUCTION

Many studies have linked students' lack of readiness for the academic writing demands of tertiary education to several factors, including writing apprehension, a mismatch between high school and university writing requirements, and inadequate writing instruction. For instance, Aunurrahman et al. (2017) noted that students have little control over the schematic structure and linguistic features of an argumentative writing. Noori (2020) similarly reported that undergraduate students are challenged in terms of language (use of discourse markers, appropriate vocabulary to express own ideas, and varying word choice), structure (providing proper in-text citations, content organization, planning the structure and organizing ideas), and content (distinguishing genre types, analyzing written task requirements, and providing main and supporting ideas effectively). For English language learners, they had to face challenges in constructing grammatically correct sentences, selecting appropriate vocabulary, producing cohesive texts, and locating information and choosing relevant references (Khadawardi (2022). Adding a new layer is the increasing availability of generative artificial intelligence (AI) tools, such as large language model-based chatbots and writing assistants. Although AI tools can offer immediate support with inspiration, idea generation, grammar, vocabulary, and text organisation, uncritical and excessive use may weaken literacy development (Qi & Chen, 2025; Ya'u & Mohammed, 2025; Zhou, 2025).

These issues are compounded by the observation that academic writing is not systematically taught in high school. Drawish (2016) and Patience (2020) have identified teachers' negative attitude and low self-efficacy in teaching writing as significant reasons for the lack of attention given to academic writing. Cremin and Oliver's (2016) review of empirical studies on teachers as writers (1990 - 2015) highlights ongoing tensions related to teachers' lack of confidence, anxiety about writing, and negative personal writing histories, all of which may shape their classroom practices in ways that undermine students'

motivation and achievement. The rapid spread of AI-based writing tools can intensify these tensions, as teachers who already feel underprepared to teach writing may become even less sure about how to respond to machine-generated texts. This heightens the need for clear pedagogical approaches that purposefully integrate writing instruction, collaboration, and AI literacy.

2. Collaborative Writing as 21st-century Skill

Because the ability to work effectively in groups is considered a vital skill, and collaborative writing is a common requirement in many workplaces, researchers and educators have shown growing interest in collaborative writing as an academic practice. Using a mixed-methods design to compare individual and pair writing, Stell (2018) examined how collaborative writing affected the complexity, accuracy, and fluency of 32 Taiwanese university students' texts, as well as how they interacted while working together. The study found that pairs who engaged in genuine collaboration produced writing with greater accuracy and fluency, and that working collaboratively helped students address and resolve meaning-related problems in their texts. Using a quasi-experimental design with independent and group writing, Latifah et al. (2020) found that the collaborative approach was more effective for developing students' literacy. Adopting the same design as Latifah et al. (2020), Herman et al. (2020) reported that collaborative writing had a significant positive effect on students' writing achievement. Rahayu et al. (2020) explored how collaborative writing could be implemented in the pre-writing phase of English instruction. Drawing on reflective journals, interviews, and documentation in a descriptive qualitative study, they reported that students were enthusiastic and interested, and held positive views of collaborative writing because it made it easier for them to express their ideas and complete tasks faster (Rahayu et al., 2020). These studies suggest that collaborative writing can help address some of the difficulties noted earlier by allowing learners to pool linguistic resources, negotiate meaning, and jointly plan text structure. In the age of AI, a key extension is to consider how groups of learners not only collaborate, but also collaborate around and through AI tools.

3. Student Perceptions of Collaborative Writing

Aside from the effectiveness of collaboration in writing tasks, researchers have also examined students' perceptions and attitudes toward collaborative writing. For example, Veramuthu and Shah (2020) investigated the views of 32 secondary ESL students and found that they held positive attitudes toward collaborative writing and considered it worthwhile. Similarly, Sitompul and Anditasari (2022) surveyed 31 students in 10th-grade English classes and reported that students perceived collaborative writing as helpful for generating ideas, carrying out the writing process, understanding writing concepts, and building confidence. Additionally, through discussion and peer review, students learned from both their own and their peers' mistakes (Sitompul & Anditasari, 2022). Bonsu (2022) explored the effects of collaborative learning on the writing skills of 30 ESL students and found that positive perceptions of collaborative writing encouraged students to participate more actively and frequently, thereby improving their writing skills. Collaborative learning was viewed as a means of developing general language proficiency, with peer feedback playing a key role in enhancing writing.

Building on these positive perceptions, it is not surprising that generative AI is already part of the writing process in many classrooms. In human-peer-AI collaborative writing, students negotiate both with peers and with AI output. This makes explicit guidance from teachers essential so that AI functions as a shared

object of critical discussion - whose input needs to be questioned, evaluated, and revised - rather than an invisible shortcut used individually without much reflection.

4. Teacher Perceptions of Collaborative Writing

How English teachers viewed collaborative writing has also been the focus of several studies. Murad et al. (2021) reported that when teachers recognized the value of collaborative writing (student enjoyment, writing progress, and a safe environment), they became supportive of its implementation. Another study by Hafid and Gandana (2021) revealed additional benefits of collaborative writing, such as fostering social interaction, offering mutual support, and reducing students' writing anxiety. However, challenges in implementing collaborative writing were also raised: uncertainty about grading group work fairly, managing classroom time for group activities, forming effective groups, and ensuring all group members participate actively (Hafid & Gandana, 2021). Zheng et al. (2021) examined mismatches between tertiary EFL educators' perceptions and practices regarding collaborative writing and found that although most participants regarded it as valuable and feasible, more than half did not use it in their classrooms, and their positive views were not consistently supported by strong pedagogical knowledge. These mixed perceptions become more complex with the emergence of AI tools: teachers who already grapple with questions of group assessment, time, and grouping must now also decide how to regulate and integrate AI within collaborative tasks. This highlights the need for professional development that addresses not only collaborative writing in general but AI-mediated collaborative writing in particular.

6. The Age of AI

The renewed interest in collaborative writing is primarily linked to the rise of technological tools. One of them is a wiki, a Web 2.0 tool. In Al Shabibi's study (2018), although teachers had to assume multiple roles in this environment - manager, assessor, and technical expert - they expressed positive attitudes toward using a wiki for collaborative writing. Noviska et al. (2021) conducted a systematic review, which showed that using Google Docs supported the development of English language learning and teaching. Their findings indicated that teachers found this tool easy to use and helpful in managing the teaching and learning process. More recently, generative AI tools have begun to operate alongside such collaborative platforms. Yibokou et al. (2025) observed 753 undergraduates engaged in group writing tasks at a French university. They found that once AI became available, many students used it even without explicit instruction, yet they tended to underreport this use. Integrating AI tools into collaborative writing tasks changes the teacher's role yet again, adding responsibilities such as modelling critical use of AI, establishing guidelines for acceptable AI assistance, and supporting students as they jointly interpret and edit AI-generated texts. The technological turn in collaborative writing, therefore, now extends beyond Web 2.0 tools to include AI as an integral, if contested, participant in the collaborative writing process.

7. Collaborative Writing in the Age of AI (the IB Context)

In light of these developments, collaborative writing in contemporary classrooms cannot be conceptualised solely as student interaction. In many settings, particularly IB classrooms where inquiry, collaboration, and academic integrity are foregrounded, learners increasingly engage in human-peer-AI collaborative writing. Designing human-peer-AI collaborative writing tasks in IB classrooms, therefore, requires careful pedagogical decisions that are consistent with the IB Academic Integrity policy, including the recently added Appendix 6 on the use of artificial intelligence tools. The IB emphasises that “the goal of academic

integrity is to make knowledge, understanding and thinking transparent” and that students must “correctly reference and ethically use... artificial intelligence (AI) tools” (IB, 2025). The spirit of the policy is in line with the IB Learner Profile attribute of being Principled - acting with honesty and integrity. Appendix 6 is an invitation to integrate AI responsibly, providing a framework for teachers to assign learning experiences that incorporate AI while maintaining academic rigor.

Aside from academic integrity, the IB aims to develop the IB Learner Profile attributes and the Approaches to Learning Skills (ATL) among its learners. Human-peer-AI collaborative writing does not just offer opportunities to practice academic integrity but also to develop the IB learner profile attributes and ATL skills. For example, it can engage students as Inquirers (e.g., investigating a topic using AI as a tool, Thinkers (e.g., critically evaluating AI outputs), and Communicators (e.g., working effectively with peers and articulating ideas clearly in writing). It also requires them to be Open-minded about new ways of learning and Reflective about their use of technology. The IB's Approaches to Learning (ATL) skills are directly addressed through a structured collaborative writing task with AI. For instance, students practice their communication and social skills by coordinating with peers (and even with the AI, through prompts and responses); they use thinking skills in analyzing AI-provided information and integrating it; they apply research and information literacy skills in verifying AI-generated content and citing sources; and they develop self-management by adhering to ethical guidelines and managing time within the group work.

8. Design Principles of Human-Peer-AI Collaboration

Three design principles for AI-mediated collaborative writing in IB classrooms can support adherence to this policy. These designs draw primarily on Sociocultural Learning Theory (Vygotsky, 1978), which posits that learning is fundamentally a social process mediated by tools and interaction with more knowledgeable others (Mehri & Majid, 2014). Peers, teachers, and AI tools all operate as mediational resources within the learner's zone of proximal development. Small groups of students jointly construct a text while drawing on one another's knowledge, teacher guidance, and AI-assisted suggestions. The central question becomes how IB teachers can orchestrate these resources so that AI functions as a scaffold for thinking and language development, extending what learners can do with support rather than a surrogate that replaces students' own cognitive work.

1. AI as Scaffold Rather Than Surrogate

AI tools may provide starting texts, language suggestions, or organisational prompts. However, students remain responsible for refining, personalising, and critically shaping the final product, in line with the IB expectation that teachers see students' work develop over time and that learners can explain it as their own.

2. Transparency of Process and Authorship

Groups make visible how AI has been used (for example, through process logs or reflective journals) and acknowledge any AI-generated text, images, or graphs in both the body of the work and the bibliography, including the prompt and date, as required by the IB.

3. Dialogic and Critical Engagement with AI Output

In line with IB guidance, classroom activities should explicitly address the ethical use of AI and encourage students to examine potential bias in AI-mediated sources. In this way, AI-generated language becomes an object of collective critique, evaluation, and editing rather than an unquestioned authority.

These three principles align AI-supported collaborative writing with IB values by treating AI as a learning tool rather than a ghost-author, foregrounding transparency and proper attribution, and positioning

collaborative critique of AI output as part of students' ethical and intellectual development as principled writers and thinkers.

8. Conclusion

Generative AI has made it clear that collaborative writing in IB classrooms can no longer be understood as interaction only between students and teachers. When groups write with AI at their fingertips, the question is not whether the technology is present, but how it is positioned within the social and ethical life of the classroom. This paper has proposed human-peer-AI collaborative writing as a way of naming that new reality and has used a sociocultural lens and IB academic integrity expectations to sketch out how such work can remain educative rather than merely expedient. The focus on scaffolding, transparency, and critical dialogue is intended less as a set of prescriptions than as a starting point for teachers and schools who need language to talk about AI use in group writing.

The real work now lies in local experimentation: designing tasks, documenting processes, and listening carefully to how students experience writing with peers and machines. Empirical studies in IB settings will be essential to test and refine the ideas outlined here and to ensure that, in practice, AI-supported collaborative writing deepens rather than dilutes students' capacity to write, reason, and act with integrity.

9. References

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