

Generative Artificial Intelligence (GenAI) in Higher Education: Human-AI Collaborative Learning in Hong Kong

CHENG Shuk Ling¹

¹ Faculty of Humanities, The Hong Kong Polytechnic University, Hong Kong

Abstract

This paper reports on a university-funded teaching development project conducted to integrate collaborative learning among learners, teachers, and Generative Artificial Intelligence (GenAI) to enhance the effectiveness of student learning in higher education in Hong Kong. Students first acquired theoretical knowledge of business leadership in traditional lecture settings; they then applied these concepts by proposing promotional projects for local companies, developing role-play scripts, and consulting GenAI for formative feedback. The process involved learner-AI collaboration for feedback-giving and idea improvement through iterative cycles. Findings highlight the effectiveness of human-AI collaboration in learning, deepening understanding, and improving leadership behaviours in scenario-based contexts. The study demonstrates best practices for leveraging GenAI in collaborative learning, offering transferrable insights for higher education across disciplines. It promotes enhanced student engagement and personalised learning through human-AI interaction.

Keywords: Generative Artificial Intelligence (GenAI) in higher education; collaborative learning; human-AI interaction; business management education

1. Introduction

Recent advances in Generative Artificial Intelligence (GenAI) since 2022, particularly generative models such as ChatGPT, have presented new opportunities to enhance collaborative learning and collective idea improvement in higher education. Academic discussions within the educational sphere concerning the usage of ChatGPT in higher education range from a focus on student-ChatGPT interaction in collaborative learning (Kim et al., 2024) and student identity (Darvin, 2025), to concerns over the ethical use of GenAI and plagiarism (Powers et al., 2025), as well as teaching and learning practices in Science, Technology, Engineering, and Management (STEM) education (Kumar et al., 2024). Whilst the application of human-AI interaction in educational settings is still emerging, scholars have begun to recognise its significant potential to redesign teaching and learning processes (Darvin, 2025). Nam and Bai

(2023) revealed that GenAI can act as a support for learners, providing valuable insights in academic settings. In particular, Kumar et al. (2024) investigated the transformative potential of ChatGPT in enhancing learning experiences and contributing value to business management higher education.

In the contemporary landscape of business management higher education, the cultivation of leadership skills has become a critical graduate attribute for business schools, highly valued by employers across industries. Leadership is not merely the acquisition of theoretical knowledge; it is the demonstration of effective behaviours and decision-making in real-world contexts. Despite its importance, bridging the gap between theory and practice remains a persistent challenge for both educators and learners. Traditional pedagogical approaches, such as lectures and case studies, often fall short in fostering the active application and exhibition of leadership skills, particularly in dynamic business environments. The emerging trend of using GenAI in higher education contexts serves as a catalyst for pedagogical researchers to rethink and refine current pedagogies and to redesign teaching practices strategically.

In light of this, a teaching development project titled *“Learning Experience Enhancement: Teaching Millennials Ethical Leadership through Role-Play Simulation with Creative Media Techniques”* was proposed and supported by the Teaching Development Grants (TDGs) funding at City University of Hong Kong (Project Number: 6000900). This project was implemented in a major elective course for Bachelor of Business Administration (BBA) students at City University of Hong Kong. Teaching and learning activities (TLAs), assessment tasks (ATs), and course intended learning outcomes (CILOs) were strategically aligned to foster learner-AI collaboration, teacher-AI collaboration, and formative feedback cycles. Students were coached in teams of four to enact managerial perspectives, propose promotional projects for local companies, and apply contingent leadership styles in realistic business scenarios. They were tasked with writing a role-play script and producing a video output based on the script.

In terms of GenAI, ChatGPT (powered by CityU) was adopted to function as a coach offering feedback to students. This paper aims to share best practices under the principle of collaborative learning in business management education, emphasising collective idea improvement among three key parties: learners, teachers, and ChatGPT. The teaching development project can be perceived as a pilot study demonstrating how human-AI collaboration can be leveraged to facilitate collective idea improvement in business management education. It identifies best practices for aligning CILOs through learner-AI and teacher-AI collaboration and explores the implications of this approach for enhancing stu-

dent agency, engagement, and the practical application of leadership skills. By disseminating findings and observations from this action research project, the paper also provides transferrable insights for instructors and course designers across different majors and institutions.

2. Methodology

This study adopted an action research methodology, integrating both qualitative and quantitative approaches to evaluate the effectiveness of AI-enabled collaborative learning in leadership education. The intervention was designed to align TLAs, ATs, and CILOs, with a focus on collective idea improvement through iterative feedback and collaboration among learners, teachers, and GenAI.

The participants were approximately seventy undergraduate students from different years of study and majors (e.g., business, social sciences, engineering, science, law, arts, etc.) enrolled in a “Leadership” major elective course. Students were organised into small groups, each tasked with developing a business promotional proposal for a local company in Hong Kong. The diversity of the cohort in terms of academic backgrounds and year of study provided a rich context for collaborative learning.

Teaching and learning activities were structured to promote active engagement, scenario-based learning, and iterative improvement. Students first attended lectures and seminars on leadership theories, including transformational, situational, and servant leadership, with emphasis placed on understanding how these theories apply in business contexts. Each group then selected a local company and developed a scenario for a promotional project, considering relevant business operational and environmental factors from a managerial perspective. Groups wrote role-play scripts that explicitly applied leadership concepts to their chosen scenario; the scripts were designed to persuade a board of directors to support and finance the promotional project.

Learner-AI collaboration was a central feature of the intervention. Students engaged with ChatGPT to propose ideas, receive formative feedback, and refine their scripts. ChatGPT acted as a coach, prompting students to reflect on their leadership choices and strategies. Teacher-AI collaboration was also integral, as teachers used ChatGPT to summarise and assess students’ ideas, providing additional formative feedback and ensuring alignment with CILOs.

Assessment tasks were designed to evaluate both the process and the outcomes of collaborative learning. Each group submitted a role-play script

demonstrating the application of leadership theories. Students received iterative feedback from ChatGPT and teachers, with opportunities to revise and improve their work. The intervention was aligned with two key CILOs: demonstrating understanding of leadership theories and their application in business contexts, and exhibiting leadership behaviours and decision-making skills in realistic scenarios. Lastly, students were required to produce a video based on the scripts they had written, either in the form of animation or by video recording.

3. Results and Discussion

The integration of ChatGPT as a coach was found to significantly enhance collective idea improvement among students. A large majority of students reported in their individual self-reflection reports that engaging with ChatGPT helped them rethink and refine their assignments. The iterative feedback process encouraged students to refine their scripts, resulting in more persuasive and well-structured role-play outputs. Formative feedback cycles, enabled by both learner-AI and teacher-AI collaboration, were instrumental in driving collective idea improvement. Irons and Elkington (2022) noted that formative feedback “plays an integral role in higher education” and fosters students’ continual improvement. Students received feedback before refining their scripts; this process fostered a culture of collaboration, with students actively seeking input from teachers and GenAI.

Analysis of the role-play scripts revealed that the majority of groups explicitly applied leadership theories in their scenarios, demonstrating a thorough understanding of concepts such as transformational leadership. The intervention incentivised student agency by encouraging learners to take ownership of their projects, experiment with different leadership styles, and articulate their reasoning. The integration of GenAI feedback with teacher evaluation ensured that proposals were both theoretically sound and practically relevant.

Students were required to submit individual written reports reflecting on the overall learning experience, including the briefing process conducted by the instructor, the script-writing process, consultation with AI, and the video production process. Students provided positive feedback regarding the effectiveness of adopting script-writing and role-play ideas for learning leadership in business:

*“We had sessions on leadership and communication skills, but **the real magic happened when we started collaborating as a team.** We improve a lot as a team and individually because of constructive feedback.”*

*“By writing the script and producing a role-play animated video of these two scenarios, **I was able to transform ambiguous ideas into clear ways to understand leadership in business easily.**”*

*“My experience with **this project motivates me to become a transformational leader** as well as build constructive workplace environments regardless of my future roles.”*

*“Through the real-world application of theories, **I gained practical knowledge that will shape my leadership skills in my upcoming career.**”*

*“**My professional and academic path** forward shows greater assurance when dealing with ethical challenges because I understand that my decisions will affect my team members as well as myself.”*

*“This project not only educated me about leadership, but also helped me realise their **practical implication** with empathy, fairness, and accountability.”*

On the other hand, students reported difficulties encountered during this learning experience, including steep learning curves due to a lack of prior experience in using animation software for video production, and the difficulty of writing an effective script that captures the application of theories within a limited video timeframe. Based on student feedback, the Principal Investigator (PI) and Co-Investigator (Co-I) would revise the design of the learning experience, ensuring students receive sufficient training on the use of animation software and acquire intermediate script-writing skills prior to the learning experience.

*“Our team **members faced steep learning curves because animation software tools were new to us.** The obstacles we encountered forced us to collaborate as a group, which enriched our understanding of leadership while building our technical capabilities to improve communication effectiveness.”*

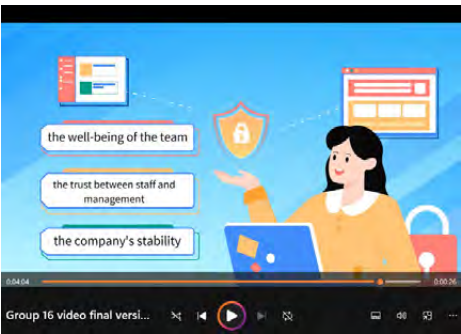
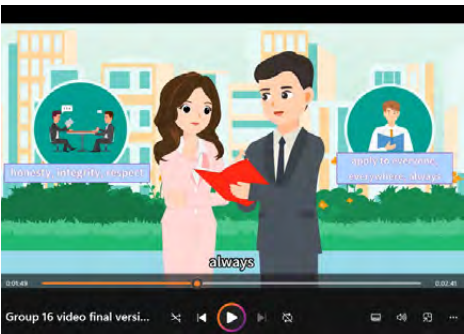
*“At first, we found it **difficult to precisely apply leadership concepts into our scripts within the time limit of the video.** Then we worked on searching lecture notes and online resources to find ideas for the scripts.”*

Overall, the study demonstrates that AI-enabled collaborative learning can effectively bridge the gap between leadership theory and practice. By fostering collective idea improvement among learners, teachers, and GenAI, the intervention promoted deeper understanding, active application, and the development of practical leadership skills.

4. Pedagogical Implications

The integration of GenAI into collaborative learning environments facilitated collective idea improvement, enhanced student agency, and promoted the practical application of leadership skills. The findings contribute to the theory of collaborative learning by illustrating how human-AI partnerships can enrich the learning process. The study supports the view that learning is a social and iterative endeavour, enhanced by diverse sources of feedback and collective idea generation.

The role of GenAI as a coach aligns with constructionist principles, in particular a participatory approach that enabled students to actively construct knowledge through dialogue, reflection, and experimentation. The Situated Learning Model (SLM), also known as participatory learning theory, suggests that the nature of knowledge is context-dependent and situational, and the need to learn is driven by the context or environment. Knowledge could be acquired through a collaborative approach. This echoes the design of the role-play script project, where management students collaborated under a given context (i.e., developing a scenario for a promotional project to persuade a board of directors to support and finance the promotional project).



On an institutional level, this experimental study offers practical recommendations for implementing AI-enabled collaborative learning. It is suggested that Higher Education Institutions (HEIs), and in particular course designers, should begin to equip students with skills to communicate effectively with GenAI (i.e., AI literacy) and to conduct learning activities that incorporate iterative

feedback from both GenAI and human sources.

This AI-assisted video production learning experience can be perceived as a blueprint that can be modified and adapted to other relevant academic disciplines, such as public management and social work, for learning enhancement purposes. This teaching development project highlights the effectiveness of human-AI collaboration in learning, deepening understanding, and improving leadership behaviours in scenario-based contexts. It demonstrates best practices for leveraging GenAI in collaborative learning, hence offering transferrable insights for higher education across disciplines, promoting enhanced student engagement and personalised learning through human-AI interaction.

5. Conclusion

In conclusion, AI-enabled collaborative learning represents a promising approach to enhancing leadership education in higher education. By fostering collective idea improvement among learners, teachers, and GenAI, the intervention bridged the gap between theory and practice, promoted student agency, and facilitated the development of practical leadership skills. The principles and practices identified in this study can be generalised and are transferrable to other academic disciplines. Future research could explore the use of GenAI in various academic disciplines such as STEM education, and the feasibility of combining GenAI in higher education with Task-Based Learning (TBL). As GenAI technologies continue to evolve, their integration into collaborative learning environments will be essential for preparing graduates to lead and innovate in complex settings.

Ethical Declaration Statement

The project “*Learning Experience Enhancement: Teaching Millennials Ethical Leadership through Role-Play Simulation with Creative Media Techniques*” was supported by the Teaching Development Grants (TDGs) funding at City University of Hong Kong (Project Number: 6000900). This project has received ethical approval by the Human and Artefacts Ethics Sub-Committee, Research Grants and Contracts Office, City University of Hong Kong (Reference Number: HU-STA-00001260).

Generative AI Policy

The author used PolyU GenAI during the preparation of this work to improve readability and language. After utilising the tool, the author thoroughly reviewed and edited the content as necessary and assumed full responsibility for the publication’s content.

References

- Darvin, R. (2025). Identity and investment in the age of Generative AI. *Annual Review of Applied Linguistics*, 45, 10–27. <https://doi.org/10.1017/s0267190525100135>
- Irons, A., and Elkington, S. (2022). *Enhancing learning through formative assessment and feedback*. Routledge.
- Kim, H. K., Roknaldin, A., Nayak, S., Zhang, X., Twyman, M., Hwang, A. H.-C., and Lu, S. (n.d.). Empowering computer-supported collaborative learning with chatgpt: Investigating effects on student interactions. *2024 ASEE PSW Conference Proceedings*. <https://doi.org/10.18260/1-2--46032>
- Kumar, S., Rao, P., Singhania, S., Verma, S., and Kheterpal, M. (2024). Will artificial intelligence drive the advancements in higher education? A tri-phased exploration. *Technological Forecasting and Social Change*, 201, 123258. <https://doi.org/10.1016/j.techfore.2024.123258>
- Nam, B. H., and Bai, Q. (2023). CHATGPT and its ethical implications for STEM Research and Higher Education: A media discourse analysis. *International Journal of STEM Education*, 10(1). <https://doi.org/10.1186/s40594-023-00452-5>
- Powers, E., Arif, R., Fedner, M., Conahan, E., and Ezechukwu, A. (2025). “A starting point and a crutch”: Student and faculty perceptions of generative AI. *Teaching Journalism & Mass Communication*, 15(1), 2-12. Retrieved from <https://lbapp01.lib.cityu.edu.hk/ezlogin/index.aspx?url=https://www.proquest.com/scholarly-journals/starting-point-crutch-student-faculty-perceptions/docview/3251471494/se-2>