

Strategies and Best Practices
for Preparing Taiwanese
Students for Success in a
Multicultural and
Global Workforce

Edited By

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Published in Kaohsiung, Taiwan by the
Department of Applied Foreign Languages of Shu-Te University.

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ISBN: 978-626-96355-9-7

ISBN 978-626-96355-9-7



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PRINTED IN TAIWAN

Technology as a Medium of Instruction: The Challenges and Opportunities in the Use of AI in EMI programs

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The title of this article is a wordplay on the EMI acronym and a provocation for considering the future of business English and the increasing use of AI in the language world. According to Time magazine, Taiwan is the center of the global tech industry and the wide-reaching effects of AI (Miller, 2022; Pao, 2023). The word instruction, in the phrase English as a medium of Instruction, is a word that can be associated with both teacher-focused classroom education and the methods used in programming computers, where instructions are fed into the machine to perform specific tasks and outcomes. With the emerging AI technology, it is becoming apparent that the 'instruction' mode of human interaction is being replaced with AI construction of knowledge we have yet to imagine (AI Uncovered, 2023). The shift from 'instruction' to 'construction' was a learning practice envisioned by educational philosophers Seymour Papert and Sherry Turkle, who proposed that learning is more effective when it is student-centered and shaped by the individual needs of learners (Lachney & Foster, 2020). Papert and Turkle called this approach "constructivism" with a focus on methods to encourage "Epistemological Pluralism," meaning multiple ways and methods of learning (Papert & Turkle, 2022).

As the world braces itself for the effects of AI, the next disruptive technology to ripple through society and its structures, it seems timely to re-evaluate the challenges and opportunities for visualizing future strategies for University teaching and learning practices. Part of this vision is Taiwan's 2030 bilingual plan (NDC, 2023). In developing a future workforce and as a way of understanding the world, education, and technology are closely linked. We see the world through our technology, we communicate and interface with technology daily, and technology also plays a distinct role in shaping our worlds. We build our lives, businesses, and learning structures around what is made possible by technology; even the simple technology of communicating from remote

distances enables our view of the world to become global or internationalized. The internationalization of education is seen, in this respect, as an essential aspect of the global positioning of Taiwan's workforce (NTNU, 2023). The American Association of Psychology referencing system asks that AI be referenced as a "personal communication," citing the version and date of the ChatGPT used. One omission from this referencing system is the country of access, assuming that Chat GPT and other AI are an international communication devoid of national politics or, a phrase often associated with Taiwan, the effects of geopolitical forces (Toews, 2023). Does AI, therefore, represent the type of internationalization we aim for in Taiwan's bilingual 2030 program: a set of geopolitical assumptions which resist ambiguity but simultaneously assume a particular and narrow set of cultural worldviews?

In this era of advancing technology, the implications of AI are undeniable, making it crucial to reassess the challenges and opportunities surrounding English language teaching, particularly in business English, and their alignment with Taiwan's bilingual plans for 2030 and the broader education systems. The symbiotic relationship between education and technology is vital for nurturing a future workforce and gaining a comprehensive understanding of the world we live in. EMI programs are central to achieving the aims of 2030 bilingual Taiwan. One of the aims of EMI courses is to prepare a future workforce that is well-equipped with language skills and technological literacy (Ministry of Education, 2021; Graham, 2023).

AI Technologies and the Education Sector

Questions and concerns include the following:

1. What are the implications of AI-generated essays on traditional university assessment and alternative assessment forms?
2. Can a distinction be made between AI-generated and human-written content using previously available automated essay correction software (such as commonly available spell checker, Grammarly, and the new generative AI GrammarlyGO, 2023)?

3. What skills are required for students to effectively manipulate AI systems in generating business English texts?
4. How does integrating AI in communication skills development impact learners' adaptability, critical thinking, and problem-solving abilities?
5. How can AI algorithms assist teachers in evaluating student essays while ensuring the necessary human role in interpreting assessment criteria and maintaining academic integrity and global workplace readiness?

The increasing presence of artificial intelligence (AI) in the educational sector poses significant challenges and raises questions about the future of universities and English as a medium of instruction courses. With the advent of AI-powered writing tools, students can automate the essay writing process. This shift towards relying on AI to generate texts concerns the skills and abilities needed to manipulate the machine effectively.

Computational Thinking

Technology has shaped education expectations in New Zealand, prompting the New Zealand government's Teaching and Learning Initiatives to find ways to increase 'computational thinking' (CT) in high school students (TLRI, 2023). The concern was a decline in the abilities of domestic New Zealand students in mathematics and preparedness for employment roles in STEM industries, such as programming and computer development. CT is a type of step-by-step planning and execution of instructions that a computer can easily follow without ambiguity (Lodi & Martini, 2021; Wing, 2010; Wing, 2006). The research project I was involved in utilized the makerspace as a learning environment to pursue an "Epistemological Pluralism" approach to technology (ACT, 2023).

One of the questions in this research was whether we should encourage students to 'think more like computers' to be better able to instruct and program or to question the concept of instruction and aim towards a 'constructivist' approach to education (Papert & Turkle, 2022).

In popular culture, AI is seen as a technology that can encourage a form of 'epistemological pluralism,' using a technology-enhanced classroom to allow more freedom for learners to pursue their paths to knowledge. However, it seems that a re-evaluation of education is necessary for these changes, not the actual technology itself. Perhaps thinking like computers is not what we believe it is; the assumption that education is teacher-focused instruction can also benefit from this re-evaluation.

A student focus is often all that is needed to shift the emphasis from the fixed knowledge of instruction to a more dynamic construction of knowledge. Instead of adhering to predetermined paths, individual learners are encouraged to explore, experiment, and engage in hands-on learning. This approach values the discovery process and emphasizes creativity, critical thinking, and problem-solving skills. By embracing flexibility in the curriculum and allowing for learner-guided exploration, we cultivate a society that celebrates individual agency, innovation, and a higher potential for shared collective construction of knowledge. This shift towards construction-based learning empowers individuals to participate actively in their education and fosters a culture of lifelong learning and intellectual growth.

The Makerspace as a Student-Centered Learning Space

In the context of teaching and learning English languages through activities and active learning processes, Computational Thinking (CT) takes on a new dimension. While CT is often associated with programming computers and problem-solving, its application can extend beyond coding to incorporate broader aspects of cultural thinking, feeling, and experiencing. This more expansive approach, known as Advanced Computational Thinking (ACT, 2023), aligns with the concept of Epistemological Pluralism, which emphasizes a broader sense of learning incorporating strategies other than instruction.

In English language learning, incorporating ACT means moving beyond conventional computer-based skills and exploring advanced forms of CT that encompass ethical, creative, critical, reflective, and community dimensions. To gain a deeper understanding, we turn to the practice and activities driven by the MakerSpace ethos (Rendina, 2015; Vossoughi & Bevan, 2014; Resnick & Rosenbaum, 2013; Washor &

Mojkowski, 2013), where students and teachers engage with ACT in student-led spaces. By prioritizing learner desires and needs for knowledge, students can design and enact their own "curriculums" within the MakerSpace.

Epistemological Pluralism is a philosophy that recognizes and embraces the idea that there are multiple ways of understanding and learning. In the context of English as a foreign language, this perspective emphasizes the importance of providing learners with diverse opportunities to engage with the language and construct meaning through various modalities. The makerspace, inspired by the educational research of Seymour Papert and Sherry Turkle, offers a promising learning environment that aligns with the principles of student-centered active learning.

Within the makerspace, learning is not limited to traditional instructional methods but is instead driven by hands-on, experiential activities. Learners are encouraged to actively participate in the construction of their knowledge through practical engagement and problem-solving. This approach recognizes that individuals learn best when they are actively involved in the learning process and can apply their knowledge in authentic contexts.

One of the key findings of the TLRI project was the notion that "everyone is a learner" within the MakerSpace (TLRI). This inclusive approach extended beyond the students to encompass the staff as well. Despite their busy schedules and responsibilities, teachers embraced the role of being learners themselves alongside their students. Participating in the learning process fostered a sense of collaboration and shared growth. The mutual exchange of knowledge and experiences between staff and students contributed to the richness of the learning environment and enhanced the effectiveness of collaborative learning. This peer-to-peer interaction cultivated a sense of community and encouraged students to develop their interpersonal language skills in English. Engaging in discussions, explaining concepts and practices, and providing feedback to their fellow learners allowed them to practice and strengthen their business English proficiency in a meaningful and authentic context.

The MakerSpace provides a unique learning environment that goes beyond traditional classroom settings. Its emphasis on culture, collaboration, and student ownership creates a space where business

English learners can thrive. By immersing themselves in this student-led environment, learners can develop their language skills, confidence, critical thinking abilities, and entrepreneurial mindset.

MakerSpace potentially serves as a catalyst for the internationalization of knowledge, enabling English language learners to communicate effectively and navigate the challenges presented by new technologies. Through integrating business English instruction within the MakerSpace, learners gain the necessary skills to navigate the complexities of the modern workforce and contribute meaningfully to the global economy.

The emphasis on student ownership and decision-making processes within the MakerSpace fostered a deep sense of belonging and connection to the learning environment. By involving students in critical decisions, such as selecting equipment, designing activities, and shaping the culture of the space, they developed a strong sense of agency and responsibility. This ownership motivated their engagement and empowered them to take ownership of their learning. As a result, they were more invested in the learning process and actively sought opportunities to apply their language skills to real-world business scenarios.

AI Technology and the Future Workforce

Questions presented in this section include:

1. What specific business English skills are most valuable in an AI-dominated work environment?
2. How can language learning adapt to accommodate the changes brought about by AI technologies in business communication?
3. How can AI be effectively integrated into language learning methodologies to enhance business English proficiency?
4. What are the key competencies and skills needed for effective human-AI collaboration in the context of English language learning?
5. How can interactive and experiential learning approaches be utilized to develop algorithmic thinking skills and facilitate effective communication with AI systems in business contexts?

In the face of advancing AI technologies, the future workforce faces significant challenges and uncertainties. The rapid development of AI brings about a transformation in the nature of work, requiring individuals to acquire new skills and adapt to evolving job roles. However, determining the precise skills needed in an AI-driven future remains a complex and dynamic task. One area that demands attention is learning business English as a crucial skill for fostering the internationalization of knowledge and enabling an effective workforce. As businesses become increasingly globalized, proficiency in English has become a vital requirement for effective communication, collaboration, and negotiation in multinational settings. The ability to communicate fluently and confidently in English opens doors to opportunities for cross-cultural exchanges, international trade, and business expansion.

However, the challenge lies in identifying the business English skills most valuable in an AI-dominated work environment. While language proficiency and communication skills will continue to be essential, the emergence of AI technologies raises the question of how language learning should adapt to accommodate these changes. It becomes imperative to consider how AI will impact language use, translation services, and the role of human interaction in business communication. An interdisciplinary approach is required to navigate this uncertainty so business English learners develop digital literacy skills to navigate AI-driven tools and platforms effectively. This includes understanding how AI technologies can enhance language learning through automated language assessment, personalized learning platforms, or AI-powered language tutors. Integrating AI into language learning methodologies can create more engaging and adaptive learning experiences, tailoring the instruction to individual learners' needs and progress.

As AI automates routine tasks, individuals must focus on complex problem-solving, creativity, and adaptability—the human qualities complementing AI capabilities. Business English programs can incorporate activities fostering critical and creative thinking, such as case studies, simulations, and real-world projects encouraging learners to apply their language skills in practical business contexts. The internationalization of knowledge also requires learners to develop cultural awareness, intercultural communication skills, and an understanding of business etiquette across different cultures. This

includes linguistic competence and mastery of cultural nuances, norms, and practices that influence business interactions.

As the increased use of AI permeates various business practices, including marketing and extensive data analysis, English language learners face new challenges in effectively communicating with technology and acquiring new competencies, such as computational thinking. The evolving role of AI necessitates a shift in the skills required to interact with these technologies, particularly in terms of understanding and articulating the specific needs and tasks expected of AI systems.

What would an EMI business English program look like if designed to incorporate emerging AI technologies?

Below is a speculation on what courses could be added to an English Business program to incorporate emerging AI technologies. It is intended as a discussion piece, a work in progress, rather than a comprehensive proposal.

First-Year Courses:

1. Introduction to business English in a bilingual context
2. Foundations of effective communication strategies
3. Generative AI in business communication
4. Cross-cultural and internationalized business communication

Second-Year Courses:

1. Advanced business English writing and presentation skills
2. AI-enhanced language assessment and feedback strategies
3. Business negotiation and intercultural competence
4. Innovation in business English using AI

Third-Year Courses:

1. AI-driven language generation for business communication
2. Final year project: AI-integrated language construction for the Workforce

I have developed the above program in reference and was influenced by similar University courses on AI, which are only now starting to emerge (see: ASU, 2023; OSWEGO, 2023; MacGregor, 2023). With a strong

emphasis on business communication and language proficiency, students explore innovative approaches, leveraging AI technologies to enhance language learning and instruction. This program prepares students to become effective communicators in the global business arena and supports Taiwan's goal of becoming a bilingual nation by 2030. Students can engage in innovative projects combining AI with developing English language abilities, exploring the potential of AI-driven language generation for effective business communication. The end-of-year project provides a platform for students to apply their knowledge and skills to develop AI-integrated communication solutions that address real-world challenges faced in the global workplace. By participating in this program, students would not only enhance their business English proficiency but also develop a strong foundation in operating AI technologies for use in real-world business situations.

Conclusion

The increasing use of artificial intelligence (AI) in education raises significant challenges and uncertainties regarding the future of universities and English as a medium of instruction courses. One of the concerns lies in the potential shift towards students relying on AI to write their essays. This shift prompts us to question whether the focus of learning will transition towards acquiring skills to manipulate the AI system effectively. What skills will be needed to guide AI in generating the correct types of texts for essays? Moreover, will the AI generation of reports result in students ceasing to develop specific essential skills and instead relying on AI to do the work for them?

As business practices turn to AI for marketing and content writing, the focus of learning may shift towards acquiring the skills necessary to navigate and guide the AI system. Understanding how to provide the correct input, manipulate the settings, and fine-tune the AI-generated texts become crucial proficiencies. However, this raises a broader question: will this reliance on AI generation diminish the development of essential skills traditionally associated with essay writing?

The process of crafting an essay involves critical thinking, research, analysis, and effective communication. These skills are fundamental to academic growth and intellectual development. If students solely depend on AI to do the work for them, there is a risk of neglecting the

cultivation of these essential skills. Over time, this could affect their ability to think critically, engage in independent research, and articulate their ideas effectively.

As the use of AI to generate essays raises concerns about academic integrity and authenticity, it becomes less possible to distinguish between original work produced by students and AI-generated content. Educational institutions and instructors must adapt their assessment methods and implement measures to ensure academic honesty in an AI-saturated environment. One approach is a more practice-based student-centered learning environment, as seen in the makerspace.

To address these challenges, a balanced approach is necessary. While AI can be a valuable tool in supporting students' writing process, it should be used as a complement rather than a complete replacement for their efforts. Emphasizing the development of critical thinking, research skills, and effective communication remains vital in education. By considering the potential consequences, educational institutions can proactively shape policies and curricula to ensure that students continue to develop the skills necessary for academic success and personal growth in an AI-enabled future.

Encouraging critical questioning and ongoing exploration of the role of AI in education will foster a deeper understanding of its impact and help shape the educational landscape in a manner that aligns with the needs of students and society.

The emphasis on "learning how to learn" and the shared culture of making in the Makerspace foster a sense of ownership and empowerment among learners, enabling them to take charge of their education and become active participants in their learning journeys.

Integrating AI in education, particularly in teaching English as a second language and business English, presents challenges and opportunities. Embracing Epistemological Pluralism, leveraging the Makerspace environment, and developing the necessary skills to interact with AI systems are essential for preparing learners for the future workforce and enabling the internationalization of knowledge. As we navigate this evolving landscape, it is crucial to maintain a human-centered approach, prioritizing the interdisciplinary development of learning skills and fostering a culture of creativity, critical thinking, and adaptability.

References

- AI Uncovered. (2023). Here's Why GPT 5 Will Change The World (Forever). <https://youtu.be/FzeGG0NuLKU?t=400>
- ACT. (2023). Advanced Computational Thinking. <https://advancedcomputationalthinking.org/>
- ASU. (2023). New ChatGPT course at ASU gives students a competitive edge. <https://news.asu.edu/20230504-creativity-new-chatgpt-course-asu-gives-students-competitive-edge>
- GrammarlyGO. (2023). Introducing GrammarlyGO, the suite of generative AI capabilities from the leader in AI communication assistance. <https://www.grammarly.com/grammarlygo>
- Keith M. G. (2023). What is "EMI" in Taiwan?. <https://keithmgraham.com/what-is-emi-in-taiwan/>
- Lachney, M., & Foster, E. K. (2020). Historicising making and doing: Seymour Papert, Sherry Turkle and epistemological foundations of the maker movement. *History and Technology*, 36(1), 54–82. <https://doi.org/10.1080/07341512.2020.1759302>
- Lodi, M., & Martini, S. (2021). Computational thinking: Between Papert and Wing. *Science & Education*, 30(4), 883–908.
- MacGregor, K. (2023). Nothing artificial about intelligence at world-first AI university. <https://www.universityworldnews.com/post.php?story=20230309142805344><https://doi.org/10.1007/s11191-021-00202-5>
- McAdoo, T. (2023). How to cite ChatGPT. <https://apastyle.apa.org/blog/how-to-cite-chatgpt>
- Miller, C. (2022). The Chips That Make Taiwan the Center of the World. <https://time.com/6219318/tsmc-taiwan-the-center-of-the-world/>
- Ministry of Education. (2021). BEST: The Program on Bilingual Education for Students in College. <https://ws.moe.edu.tw/>
- NDC. (2023). Bilingual 2030: National Development Council. https://www.ndc.gov.tw/en/Content_List.aspx?n=BF21AB4041BB5255
- NTNU. (2023). NTNU Forum on Internationalization of Higher Education. <https://bds.oia.ntnu.edu.tw/bds/en/web/2023forum>
- OSWEGO. (2023). 'ChatGPT for Business' course to offer pioneering look into AI business Applications. <https://www.oswego.edu/news/story/%E2%80%98chatgpt-business%E2%80%99-course-offer-pioneering-look-ai-business-applications>
- Pao, J. (2023). Nvidia to turn Taiwan into a world-class AI hub. <https://asiatimes.com/2023/05/nvidia-to-turn-taiwan-into-a-world-class-ai-hub/>
- Papert, S., & Turkle, S. (2022). Epistemological pluralism and the revaluation of the concrete. *Journal of Mathematical Behaviour*, 11(1), 3–33.

- Rendina, D. (2015). Defining Makerspaces: What the Research Says. <http://www.renovatedlearning.com/2015/04/02/defining-makerspaces-part-1/>
- Resnick, M. (1997). *Turtles, termites and traffic jams*. MIT Press.
- Resnick, M., & Rosenbaum, E. (2013). Designing for tinkability. In M. Honey & D. E. Kanter (Eds.), *Design, make, play: Growing the next generation of stem innovators* (pp. 163–181). Taylor & Francis.
- TLRI. (2023). ACT: Advanced Computational Thinking in the New Zealand Digital Curriculum. <http://www.tlri.org.nz/tlri-research/research-progress/school-sector/act-advanced-computational-thinking-new-zealand>
- Toews, R. (2023). Forbes Innovation: The Geopolitics Of AI Chips Will Define The Future Of AI. <https://www.forbes.com/sites/robtoews/2023/05/07/the-geopolitics-of-ai-chips-will-define-the-future-of-ai/?sh=210e58c55c5c>
- Vossoughi, S., & Bevan, B. (2014). Making and tinkering: A review of the literature. http://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_089888.pdf
- Washor, E., & Mojkowski, C. (2013). Making their way in the world: Creating a generation of tinkerer-scientists. In M. Honey & D. E. Kanter (Eds.), *Design, make, play: Growing the next generation of stem innovators* (pp. 198–217). Taylor & Francis.
- Wing, J. M. (2010). Computational thinking: What and why? <https://www.cs.cmu.edu/link/research-notebook-computational-thinking-what-and-why>
- Wing, J. M. (2006). Computational thinking. *Communications of the ACM*, 49(3), 33–35. <https://dl.acm.org/doi/fullHtml/10.1145/1118178.1118215>