Seven principles for effectively partnering with Generative AI for teaching and learning

Simon Wang[1], Aditi Jhaveri[2], Locky Law[3] and Lisa Cheung[4]

[1]Language Centre, Hong Kong Baptist University

[2]Center for Language Education, The Hong Kong University of Science and Technology

[3]Centre for Applied English Studies, The University of Hong Kong

[4]Centre for Applied English Studies, The University of Hong Kong

Author Note

Correspondence concerning this article should be addressed to simonwang@hkbu.edu.hk

The advent of Generative Artificial Intelligence (GenAI) presents novel opportunities and challenges for higher education. As Artificial Intelligence (AI) technology evolves, its application within educational frameworks, especially in English language teaching, has become increasingly prominent. This article explores the transformative potential of AI in language education, emphasizing the need to shift the perception of AI from merely a tool for information retrieval to a robust partner capable of enhancing cognitive development through reasoning and interaction. The authors, all frontline language teachers at universities in Hong Kong, draw on their practical experience in applying GenAI in teaching and learning to propose seven foundational principles. For example, one author employed AI chatbots to facilitate interactive writing exercises, allowing students to receive instant feedback on their grammar and vocabulary usage. Another author used AI tools like ChatGPT to train students to practice real-time language translation tasks and refine their skills through immediate corrections and alternative suggestions provided by the system. Leveraging their firsthand experiences, they distilled a set of key principles for integrating GenAI into English language classrooms. These principles aim to empower educators and learners to harness AI effectively, dispelling common misconceptions while unlocking its full potential as a dynamic and transformative educational tool. By redefining engagement with AI, teachers can not only streamline educational processes but also significantly enrich the language learning experience, preparing students to navigate and analyze the complex information landscapes they will encounter in their academic and professional lives.

Principle 1 Prioritize AI as a Reasoning Engine Over Information Generation

Misconceptions of AI as a Simple Information Generator

The prevailing misconception among many users is that AI, particularly within educational frameworks, functions similarly to a search engine. This perception simplifies AI to an information retrieval tool, bypassing its capabilities for complex reasoning and dynamic interaction. Users often expect AI to deliver direct answers, which can lead to uncritical acceptance of the information provided, including inaccuracies or fabricated data known as AI hallucinations. This not only risks

misinformation but significantly underutilizes AI's potential in enhancing educational experiences. A notable and notorious example is the case where a lawyer used ChatGPT to prepare a court filing, resulting in citations of non-existent cases and prompting a judge to consider sanctions due to the fabricated legal precedents provided by the AI tool (Bohannon, 2023).

Implementing AI as a Collaborative Tool

Emphasizing AI's role as a reasoning engine rather than an information generator shifts its use in education from a passive to an active tool. This perspective fosters a more interactive learning environment where AI assists in the development of cognitive skills through engagement and dialogue. A practical demonstration of this is encouraging students to pose complex queries that require AI to process and analyze information, and instead of requesting direct answers, prompting the AI to engage in a form of digital "Socratic method" (e.g. Etori & Gini, 2024) that can enhance critical thinking and problem-solving skills.

In the context of language learning, AI can be adapted to facilitate discussions that encourage learners to explore nuanced linguistic choices. Teachers could ask students to analyze and compare different sentence structures or word choices in their writing, prompting the AI to provide reasoning behind its suggestions. This not only has the potential to help students refine their language skills but could also deepen their understanding of stylistic and grammatical variations. Similarly, students could use an AI tool like ChatGPT to simulate a dialogue to debate the appropriateness of using formal versus informal tones in specific contexts, leading to a richer exploration of pragmatic language use.

In practice, AI can also be integrated into classroom discussions to simulate different perspectives in debates, helping students explore diverse viewpoints and develop reasoned arguments. Educators are therefore now encouraged to train students in prompt engineering, where carefully crafted questions lead to more meaningful AI interactions. Research (Cain, 2024; Guo & Li, 2024) supports that such interactions can significantly enhance analytical skills, preparing students to tackle complex issues more effectively.

While tools like OpenAI's ChatGPT can be adapted to educational settings where prompts are designed to elicit reasoning and for demonstrating and reinforcing these skills among students, educational workshops and professional development sessions can equip educators with effective strategies to incorporate AI's reasoning capabilities into their curricula, transforming how students interact with and learn from AI technology. By redefining AI's role in education to prioritize reasoning over simple information generation, both educators and students can better harness the technology to create more enriching and intellectually stimulating learning environments. This principle not only improves how AI is utilized in educational contexts but also prepares learners to navigate and analyze the increasingly complex information landscape they will encounter in their academic and professional lives.

Principle 2 Ensure High-Quality Data Inputs to Maximise AI Output Value

The Perils of Inadequate Input

Building on the emphasis of using AI as a reasoning engine rather than merely an information generator, it becomes imperative to address the issue of the quality of data inputs, which large language models could process to generate better responses. In the realm of AI-driven education, the adage "Garbage In, Garbage Out" (GIGO) vividly captures the pitfalls of inadequate input. Originally articulated in the context of early computer science (e.g., Dumitru et al., 2023), this principle stresses that the quality of output is directly linked to the quality of input. An example of this risk would be a language learning AI reliant on poorly curated datasets, which may produce misleading linguistic structures, potentially confusing learners or disseminating incorrect information. This challenge is intensified by large datasets which, although useful for recognizing patterns, can also amplify errors if not rigorously verified and curated (Jain et al., 2020). Recent studies highlight this issue, demonstrating how recursive use of model-generated data in training can trigger 'model collapse,' where essential features of the original content are lost, thereby compromising the model's effectiveness and reliability (Shumailov et al., 2024). This underscores the

critical necessity for the use of high-quality, authentic data when interacting with AI systems, emphasizing that the integrity of input data profoundly impacts the quality of AI outputs.

Implementing High-Quality Data Inputs

To counteract the challenges outlined, it is essential to adhere to the principle of ensuring high-quality data outputs. In a language learning context, an AI model trained on a diverse range of well-curated texts, such as academic writing samples or high-quality literature, is more likely to provide accurate and contextually relevant feedback on student essays. Conversely, AI trained on incomplete or biased datasets may generate flawed or misleading suggestions, potentially compromising the learning process.

The CIDI framework introduced by Gianluca Mauro provides a systematic approach to prompt engineering, emphasizing the importance of context, instructions, details, and input for optimizing AI interactions (How to Prompt ChatGPT, 2024). A practical application of this framework in education is crafting prompts for teaching argumentative writing. Educators can craft prompts such as: "You are an experienced English professor. Analyze the following argument for logical fallacies and provide a revised version." This clear context and specific instructions help the AI deliver more relevant and actionable feedback. Additionally, employing few-shot learning techniques (Few-Shot Prompting Explained, 2024), where the AI is provided with a few guiding examples, can dramatically improve the relevance and accuracy of its responses. For example, sharing a model thesis statement with the AI before requesting feedback on an argumentative essay can help ensure its critique aligns with desired learning outcomes. In contrast, zero-shot prompting, where no examples are given, may yield less precise results (Zero-Shot Prompting Explained, 2024).

Furthermore, it is vital to continuously educate both educators and students on the nuances of prompt engineering and the critical role of data management in AI applications. Workshops can be an effective medium for demonstrating how to craft effective prompts by experimenting with

different prompt formulations and reviewing the resulting AI outputs. Students could also learn to assess AI-generated content critically by comparing its suggestions against authoritative sources. Exercises like these could support both educators and learners craft more effective prompts that yield useful and accurate information from AI systems. This ongoing education is crucial not only for optimizing the use of AI in educational settings but also for preparing educators and students to navigate and leverage AI technology responsibly. With this focus on education and training, AI tools can be used to their full potential, transforming them from mere information retrieval resources to powerful enhancers of learning and engagement in diverse educational environments.

Principle 3 Integrate Established Educational Resources for AI Evolution

Embracing Evolution Not Revolution in Educational Practices

The introduction of AI into education should not be perceived as a disruptive force that will overturn established methods, but rather as an evolutionary tool that enhances and complements these methods. By leveraging well-tested educational resources and methodologies, AI can be integrated in a manner that enriches existing educational practices. This integration supports the notion that AI is not a replacement for human intelligence but a powerful tool that augments it, bringing new capabilities and insights that can make traditional resources more effective in a modern educational setting.

A key to successful integration is adhering to the principle of "humans in the loop," as emphasized in the 2023 AI Report by the Office of Educational Technology (Cardona et al., 2023). This principle underlines the importance of human oversight and the symbiotic relationship between AI tools and educators. Developers and educators must collaborate closely, ensuring that AI applications in education enhance rather than replace the human elements of teaching and learning.

For language teachers, translating these ideas into classroom practice may involve integrating AI tools to complement existing teaching strategies. They could use AI-driven chatbots to provide students with immediate feedback on grammar and vocabulary usage in their writing tasks. AI tools can also assist in creating tailored language exercises by analyzing individual student performance and generating personalized practice tasks to target specific areas of improvement. Additionally, AI-powered tools such as automated essay scoring systems can help teachers assess student writing more efficiently, freeing up time to provide detailed feedback on higher-order aspects like argumentation and flow.

This collaborative approach ensures that AI tools are used to augment intelligence (Cremer & Kasparov, 2021) and expertise embedded within established educational resources, rather than sidelining them. One illustrative application of this principle is the integration of AI with corpus-based learning, a traditional resource in language teaching, to make linguistic patterns and authentic examples of language use more accessible to students. By doing so, educators can harness AI's potential to offer tailored educational experiences and insights that were previously unattainable, all the while maintaining the integrity and effectiveness of proven practices. Such an evolutionary approach not only preserves but also significantly enriches the educational landscape, providing educators and students with tools that adapt and evolve alongside technological advancements.

Leveraging AI to Enhance Traditional Educational Tools

AI has the potential to significantly augment traditional educational tools, making them more adaptable and effective across various educational settings. Particularly, in the realm of data-driven learning within language education, AI complements established methodologies such as corpus linguistics, enhancing their utility and overcoming some inherent limitations.

For educators interested in customizing AI behaviors to better support these methodologies, further guidance can be found under Principle 5, which discusses customizing AI behaviors with

system prompts. This approach allows educators to tailor AI interactions in a manner that maximizes engagement and effectiveness in applying Project Zero's (Harvard Graduate School of Education, n.d.) thinking routines in classroom settings. System prompts can be aligned with specific routines such as "Claim, Support, Questions" to guide students in forming interpretations and supporting them with evidence. Additionally, digital collaboration tools like Padlet and FigJam can be enhanced with AI to create dynamic, interactive canvases that support student learning. Padlet functions as a virtual bulletin board, allowing users to post text, images, links, and multimedia in a visually organized layout—ideal for brainstorming, reflection, or collaborative discussions. FigJam, an online whiteboard by Figma, enables real-time collaboration with sticky notes, diagrams, and flowcharts, making it particularly useful for mapping out complex ideas or debating ethical dilemmas. When integrated with AI, these tools can suggest relevant resources, prompt deeper critical thinking, or even simulate diverse perspectives on controversial topics, fostering richer engagement and more structured idea exploration. By leveraging both the customization of AI and the integration of established educational tools, educators can create a cohesive learning environment that combines the strengths of traditional methodologies with the dynamic adaptability of AI. This alignment not only enhances the application of Project Zero's thinking routines but also ensures that human interaction remains central to the teaching and learning process.

The integration of AI can significantly enrich methodologies that aim to make learning processes visible and explicit, such as those pioneered by Project Zero (e.g. deLuse, 2009). By utilizing AI tools to analyze and visualize learning patterns, educators can gain insights that are immediately actionable, thereby enhancing the ability of these tools to support the Project Zero goal of making thinking visible. One of the core strategies from Project Zero involves the use of specific thinking routines, such as "See Think Wonder" or "Think Puzzle Explore", which encourage students to engage deeply with content and articulate their thought processes.

GenAI chatbots can be customized to facilitate these routines by prompting students with targeted questions that guide their thinking. For example, in the "See Think Wonder" routine, a chatbot could present an image or a piece of text and then guide students through the process by asking: "What do you see?", "What do you think about what you see?", and "What does it make you wonder?" This interaction can stimulate critical thinking while also offering personalized scaffolding based on individual student responses. Furthermore, the insight from Stephanie R. deLusé's review (2009) on Project Zero suggests the potential for greater interdisciplinarity and integration in its approach. This underscores the value of AI in facilitating a more integrated and interdisciplinary educational experience, enhancing the established frameworks of Project Zero with the adaptive capabilities of AI technologies. For educators interested in customizing AI behaviors to better support these methodologies, further guidance can be found under Principle 5, which discusses customizing AI behaviors with system prompts. This approach allows educators to tailor AI interactions in a manner that maximizes engagement and effectiveness in applying Project Zero's thinking routines in classroom settings.

In summary, by integrating AI with established educational resources such as corpus linguistics and Project Zero methodologies, educators can preserve the essence of traditional educational methods while also enhancing their effectiveness and adaptability. This symbiotic relationship between AI and traditional educational tools promises a future where education is more personalized, accessible, and effective, demonstrating the evolutionary potential of AI in educational practices.

Principle 4 Recognise and Adapt to AI's Unique Cognitive Logic

Dispelling Misperceptions about AI's Cognitive Abilities

A prevalent misperception about AI is that it serves solely as a statistical prediction machine, devoid of any genuine reasoning capacity. This view often leads to underestimating AI's potential and its integration into more complex cognitive tasks. Critics frequently argue that AI lacks the human-

like ability to understand nuances and context, perceiving it as a tool limited to repetitive or

simplistic tasks. Assertions like "AI cannot replace human reasoning" or "AI is just a tool for making

predictions" are common. These statements reflect a fundamental misunderstanding of AI's evolving

capabilities, such as its ability to process and analyze data in ways that mimic human cognitive

functions, including decision-making and problem-solving, for example, in the contexts of medical

question answering (Lucas et al., 2024) and legal reasoning (Guha et al., 2023).

This misperception fails to recognize advancements where AI models, through deep learning

and neural networks, have begun to demonstrate capabilities beyond mere data crunching. AI

systems are increasingly able to perform complex tasks that require a form of 'understanding' or

'reasoning', such as language translation or contextual response generation in addition to the

examples mentioned above. Geoffrey Hinton, a prominent figure in AI research, emphasizes that AI

models do not merely predict the next word in a sentence but must understand the entire context to

respond appropriately, indicating a level of cognitive processing that rivals basic human reasoning

(Hinton, 2024).

Integrating AI's Cognitive Logic into Educational Frameworks

To fully harness the capabilities of AI in educational settings, it is crucial to recognize that

GenAI chatbots' capability extends far beyond mere information generation or answering questions.

These advanced systems are capable of simulating a variety of human tasks, offering innovative

applications in educational contexts. One compelling application is their ability to simulate

conversations with historical figures, which illustrates AI's unique cognitive logic and reasoning

capabilities. Work by Donavan (2023) highlights this potential, showing how AI is being used to help

historians better understand the past by simulating dialogues with historical personalities. This

approach enables chatbots to process historical data, interpret context, and generate plausible

responses based on the persona and time period of the figure being simulated. Such simulations

demonstrate AI's ability to apply complex reasoning to recreate authentic historical interactions,

which not only enriches the understanding of historical contexts but also fosters critical thinking and engagement in educational settings. As noted in related research, these AI-driven interactions encourage students to verify information through primary sources, thereby reinforcing analytical and evaluative skills while making history lessons more immersive.

In the realm of teaching, the potential of AI chatbots to simulate detailed interactions is vast. Educators can utilize these chatbots to create simulated dialogues between themselves and virtual experts on various subjects. These dialogues can then serve as unique learning materials, where students witness modeled scholarly discussions that can enhance their understanding and spark their intellectual curiosity. Moreover, the simulation of teacher-student interactions regarding specific teaching materials or lesson plans can offer valuable insights into how these educational resources might be received in a real classroom setting. Such simulations could help teachers anticipate and address potential questions and challenges before they arise in a live educational environment.

Although empirical research on the efficacy of AI-driven simulations in education remains nascent, evidence suggests that integrating high-quality, authentic examples of human interactions into AI prompts can substantially improve chatbot performance in these instructional contexts. Language teachers can play a critical role in this process by crafting thoughtful and contextually rich prompts that guide the chatbot's responses. By offering examples of realistic and meaningful interactions within these prompts, educators can help the AI generate more accurate, contextually appropriate, and pedagogically valuable simulations. This approach not only improves the quality and realism of the AI's responses but also ensures that the tool aligns with specific educational objectives, making it a more effective resource in teaching and learning.

By acknowledging and leveraging the reasoning and simulation capabilities of AI chatbots, educators can explore new and exciting possibilities. This proactive integration of AI's unique cognitive logic into educational frameworks opens up innovative pathways for enhancing

educational practices, making learning more interactive, and preparing students for a future where digital and human interactions are seamlessly intertwined.

Principle 5 Customise AI behaviors with system prompts

Refining AI Interactions through Customization

Generic chatbots like ChatGPT and Gemini, which are pre-trained on extensive datasets, can generate human-like responses for a wide array of general questions and requests. However, their effectiveness is often limited by the generic nature of their responses, which can be predictable and sometimes mediocre. This typically occurs because these chatbots lack the specific contextual information needed to tailor their responses to particular educational scenarios. As discussed earlier (see Principle 3), the integration of established educational resources can significantly enhance the effectiveness and relevance of AI applications in learning environments. Similarly, customizing AI behaviors through system prompts builds on this idea of leveraging educational methodologies to create AI tools that align with specific teaching and learning objectives. For instance, rather than relying on a generic chatbot, a language instructor could enhance its usefulness by creating a targeted prompt such as: *"You are an EAP (English for Academic Purposes) tutor specializing in first-year university writing. Help students improve their academic language skills by identifying errors in grammar, coherence, and formal register in their drafts - but instead of correcting mistakes directly, provide metalinguistic explanations and guided questions to promote self-editing."* Adding specific parameters - such as the writing task type (e.g., argumentative essay), common L1 interference patterns of the student cohort, or discipline-specific vocabulary requirements - would allow the AI to deliver precise, level-appropriate feedback. However, this strategy presumes both linguistic awareness and technical proficiency in prompt design that time-pressed lecturers may lack. Moreover, expecting educators or novice students to formulate such specialized prompts for every writing consultation would prove impractical in real classroom settings.

Therefore, companies like OpenAI and poe.com have offered customization functions that allow users to define chatbots that would behave in certain ways following the instructions found in system prompts. Such system prompts are integrated into the chatbots which take the information and instructions into account whenever talking to the end users. The system prompts provide space for developers to programme the chatbots using natural languages, which before the advent of GenAI technologies, was done through computer programming.

Optimizing Language Learning with Customized AI: The "WordChoice" Chatbot

To address the limitations of generic AI interactions in educational settings, it is crucial to customize AI behaviors using system prompts tailored to specific educational contexts. This approach not only ensures relevance and alignment with learning objectives but also enhances the effectiveness of AI in engaging students meaningfully. A prime example of this application is the "WordChoice" chatbot, designed specifically for language learning. Available on poe.com (poe.com/wordchoice), the chatbot utilizes system prompts that guide it to assist students in improving their word choice and understanding of collocation, which are crucial to mastering a language.

How "WordChoice" Enhances Language Learning: an illustration

The system prompt for "WordChoice" instructs the AI to function as an experienced English lecturer, focusing solely on enhancing students' word choice in their writing. See an explanation below of how it operates in terms of user interaction as well as transparency and guidance.

User Interaction

Upon receiving the command menu, "WordChoice" presents a concise list of learning options without adding extraneous information. These options include learning about the importance of word choice, checking collocations, assessing the appropriateness of word combinations, and reviewing word choices in paragraphs. The paragraph below provides the complete list of structured learning options for the chatbot.

Structured Learning Options

Option 1 guides users through multiple-choice questions that cover essential topics such as the significance of word choice for idiomaticity, the concept of collocation, and how collocation can improve writing quality. The chatbot provides immediate feedback after each question, enhancing understanding before proceeding.

Option 2 allows users to explore common and less appropriate collocations for specific words, thereby educating them on correct usage.

Option 3 offers personalized feedback on user-submitted word combinations, suggesting improvements and providing example sentences where necessary.

Option 4 involves a detailed analysis of a paragraph provided by the user. The chatbot evaluates each sentence for verb-noun combinations and other word pairings, offering feedback on appropriateness, explanations, and better alternatives.

Each of the above options is followed by feedback and learning reinforcement stage.

Feedback and Learning Reinforcement

At the end of each interaction within these options, the chatbot re-presents the menu, allowing learners to further explore or revisit topics, thus reinforcing learning through repetition and deepening understanding.

Figure 1

Screenshot of the customized chatbot on word choice made in poe.com
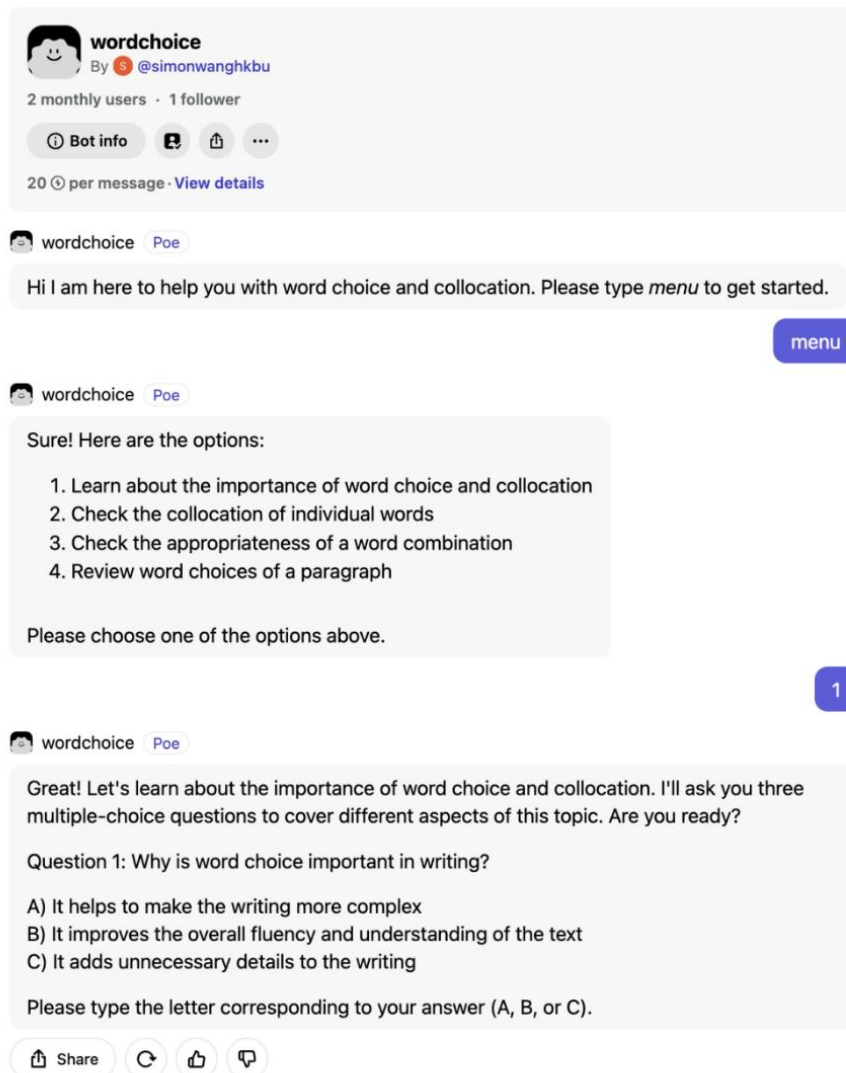
Transparency and Guidance

"WordChoice" consistently reminds users of its AI nature, advising them to consult human teachers for more professional advice, thus maintaining educational integrity and encouraging a balanced approach to AI-assisted learning. By integrating the "WordChoice" chatbot into language learning curricula, educators can provide students with a highly interactive, responsive, and personalized educational tool. This chatbot exemplifies how customized AI behaviors, when implemented through carefully designed system prompts, can transform traditional learning environments into dynamic spaces that foster deeper understanding and engagement in students.

Exploring "WordChoice": A Custom AI Chatbot for Language Learning

The "WordChoice" chatbot represents an innovative approach to language learning through customized AI behaviors. It has been designed to act like an experienced English lecturer, assisting students in enhancing their word choice and understanding of collocation. However, it is important to note that "WordChoice" has not yet been empirically tested, and there is no current evidence to confirm its effectiveness in supporting students' learning.

Despite this, it is reasonable to anticipate that the chatbot could perform in ways analogous to a real human tutor, providing interactive, personalized support to students. The intent behind introducing "WordChoice" in this special issue is to inspire more language teachers to explore and experiment with customizing chatbot technology and to share their insights on how such AI tools may enhance teaching and learning environments.

We acknowledge that gathering systematic evidence about the effectiveness of this approach will require more time and more sophisticated research instruments. This special issue aims to initiate a conversation in the educational community about the potential and limitations of customized AI chatbots like "WordChoice." It is not meant to settle any research questions definitively but rather to open up new avenues for inquiry and development in AI-assisted education, encouraging further exploration and validation of these technologies in real-world teaching scenarios.

Principle 6 Actively harness AI to simulate and enhance human textual interaction

Debunking Myths: The Realities of AI's Textual Simulation Capabilities

Building on the discussions from Principle 5 about customizing AI behaviors, and Principle 4's emphasis on AI's unique cognitive logic, this section addresses prevalent myths regarding generative AI's capabilities in simulating human-like textual interactions. Despite significant strides made by large language models like GPT-4, misconceptions persist about their limits, particularly the belief

that AI cannot match the critical thinking or emotional depth of human interactions due to its lack of consciousness. While it is true that generative AI does not experience emotions or possess genuine consciousness, its ability to generate complex, contextually appropriate text that closely mimics human reasoning and dialogue patterns is often underestimated. This capability blurs the lines between machine-generated and human-generated text, challenging traditional notions of absolute human uniqueness in textual creation.

The "WordChoice" chatbot, highlighted under Principle 5, serves as a prime example of how AI can be engineered to simulate detailed human-like educational interactions. Through the use of carefully designed system prompts, the chatbot demonstrates how GenAI can closely mimic the guidance typically offered by human tutors, extending its utility beyond simple Q&A tasks to structured, interactive learning sessions. This capacity to model complex interactions, while not equivalent to human consciousness or genuine emotional understanding, highlights AI's ability to engage in contextually appropriate and pedagogically sound dialogue. By recognizing and articulating both the strengths and limitations of GenAI, educators can harness its potential to complement, rather than replace, the nuanced aspects of human teaching. This balanced approach ensures that AI functions as a partner in fostering critical thinking, enhancing educational engagement, and supporting deeper learning.

Enhancing Text-Based Learning Interactions with AI: Opportunities and Strategies

Building on the recognition of AI's potential to emulate human behaviors and intelligence, as outlined in the previous principles, this section explores how language teachers can harness this capability to expand and enrich educational interactions. Recognizing AI's capacity to simulate complex human-like interactions opens up a multitude of possibilities for educators to create customized learning experiences. Language teaching stands to benefit significantly from AI's ability to simulate text-based teacher-student interactions. By identifying specific learning events that can be modeled through text, educators can develop customized chatbots designed to replicate and

enhance these interactions. This approach not only provides students with more engaging and diverse learning experiences but also allows for personalized educational support at scale.

Mollick and Mollick (2023) discuss various ways in which chatbots can support student learning, proposing approaches such as AI-tutor, AI-coach, AI-mentor, and more. These roles illustrate the diverse capacities in which AI can engage students, each tailored to different learning needs and educational outcomes. However, the effectiveness of these interactions can be greatly amplified through the use of specific system prompts. By crafting prompts that guide AI in delivering tailored educational content and feedback, educators can ensure that these AI-driven interactions are not only relevant but also pedagogically sound. The process of integrating AI into language learning involves careful consideration of ethical and practical aspects. Educators must address issues such as the privacy of learners' information, the reduction of bias in AI responses, and the overall transparency of AI's role in the educational process. Students should also be educated on the capabilities and limitations of AI, ensuring they understand both the benefits and potential pitfalls of using such technology.

By effectively leveraging AI's ability to simulate detailed human-like interactions, educators can transform traditional educational models, making learning more adaptive, interactive, and comprehensive. This approach enriches the educational experience and also prepares students for a future where human-AI collaboration is commonplace. As Mollick and Mollick (2023) argue, when implemented with thoughtful oversight and critical engagement, AI can become a transformative asset in education—augmenting learning outcomes without compromising the irreplaceable human dimension of teaching and learning.

Principle 7 Embrace AI as an essential partner in education

Navigating Autonomy and Accountability in AI Adoption

The integration of AI, particularly GenAI, into educational settings is increasingly recognized by university management across Hong Kong institutions, reflecting a broader commitment to

embrace these technologies. University administrations are advocating for the adoption of AI to innovate and enhance educational outcomes, aligning with global trends towards digital transformation in higher education (The University of Hong Kong, n.d.). Despite this overarching position, the actual implementation of AI in teaching practices is largely left to individual educators, granting them significant autonomy. This autonomy allows teachers to determine not only how but also whether to integrate GenAI into their curriculum, tailoring its use to fit the unique needs of their students and the specific demands of different subjects.

However, this autonomy also brings with it a substantial level of accountability. Educators are tasked with ensuring that their use of AI aligns with the educational goals of the institution while also equipping students with the necessary skills and knowledge to navigate a future increasingly shaped by AI technologies. They must judiciously employ AI to enhance learning experiences, fostering an environment where students can engage with these technologies critically and responsibly. This balance between autonomy and accountability highlights the complex interplay between individual teaching practices and institutional AI policies, underscoring the need for educators to navigate these dynamics thoughtfully to align their teaching strategies with broader university objectives.

The hesitancy in adopting generative AI in higher education can often be traced back to a cautious and conservative approach by educators. This caution is generally driven by concerns over AI-assisted plagiarism and potential abuses, overshadowing the opportunities for AI to foster innovative educational outcomes. This conservatism may stem from a lack of preparation in fostering AI literacy among students or uncertainties about the full implications of embedding AI within educational settings. This cautious stance among educators often translates into similar attitudes among students, who may also be wary of fully leveraging AI's capabilities. This scenario creates a significant tension between the autonomy educators and institutions have to innovate and the accountability they must maintain to foster safe and effective use of AI in education.

However, as the above discussion shows, AI offers extensive potential to empower teaching and learning. It enables the customization and personalization of learning experiences, adapting educational content to meet individual student needs and preferences, thus enhancing both engagement and learning effectiveness. Additionally, AI's ability to simulate complex human-like interactions presents dynamic new tools for engaging students in realistic and contextually rich educational scenarios. Moreover, AI's capacity to enrich textual interactions provides students with a broader range of perspectives and deepens their understanding of the material.

To fully realize AI's potential in educational settings, it is crucial to address the balance between the freedom to innovate and the responsibility to educate wisely. Educators require support and resources to build their competence in AI literacy, enabling them to prevent misuse and to champion constructive applications of AI technologies. Furthermore, it is imperative that students are educated not only in how to use AI but also in understanding its limitations and potential biases.

Embracing AI as an essential partner in education means navigating these aspects of autonomy and accountability with care. By achieving this balance, educators can ensure that AI acts as a powerful ally in the educational process, enhancing learning outcomes and preparing students for a future in which AI integration is ubiquitous. This approach will help harness AI's transformative potential in education, turning cautious exploration into proactive empowerment.

Integrating AI as a Core Partner in Education: Enhancing and Personalizing Learning

As we explore the transformative role of AI in education, it becomes evident that AI is not merely an adjunctive tool but a fundamental partner that reshapes how educational content is delivered and personalized. This integration signals a pivotal shift toward a more adaptive, responsive educational system that aligns with individual learner needs and broader institutional goals. By embedding AI into the fabric of educational strategies, educators can augment traditional teaching methods and customize learning experiences in unprecedented ways. For instance, AI's

capability to analyze vast amounts of data provides insights that tailor teaching approaches to diverse learning styles and preferences. Additionally, customizing AI-driven chatbots for specific educational contexts ensures continuous, contextually relevant support, maintaining ethical alignment with educational objectives and offering students a deeply personalized learning experience.

These strategies not only enhance the educational process but also equip students to be proficient and ethical users of AI technology in their future careers. Viewed from the lens of the six principles outlined in this paper, the benefits of adopting AI in educational settings are substantial - from enhancing communicative competencies with GenAI models to customizing interactions through AI-driven chatbots. AI's capacity to simulate complex human-like interactions and analyze academic texts provides dynamic tools for engaging students and fostering a culture of inquiry and critical thinking.

In English Language teaching, AI can transform how language skills are taught by creating immersive environments where students engage in conversations with AI-driven characters, receiving immediate feedback and personalized learning paths. AI chatbots like "WordChoice" (discussed earlier in this article) allow students to refine their vocabulary and collocations through interactive exercises, while platforms like Duolingo leverage AI to dynamically adjust lesson difficulty based on student performance. In higher education, AI facilitates a research-driven learning environment, assisting in literature analysis and identifying research gaps. Tools like Scite.ai, an AI-powered citation analysis platform, can help students assess the credibility of research sources and understand the context of citations in academic writing, thereby deepening their understanding of their subjects. Moreover, integrating AI into the curriculum prepares students for a future where digital literacy and AI proficiency are crucial. Educators have the dual responsibility of teaching content and instilling ethical AI use, ensuring students are not just consumers of AI but also critical thinkers capable of navigating and shaping future technological landscapes.

Embracing AI as an essential partner in education involves reimagining educational paradigms where AI complements human efforts, leading to enhanced educational outcomes and preparing students for an AI-integrated world. This proactive approach to AI adoption advocates for transformative and ethically aligned use of AI in education, emphasizing comprehensive student development and a balanced integration of technology into teaching and learning practices.

The seven principles outlined for effective integration of GenAI into educational contexts offer a comprehensive framework for leveraging AI technologies in a thoughtful and impactful manner. These principles, derived from our collective expertise and experience, range from prioritizing AI as a reasoning engine, ensuring the integrity of data inputs, to embracing AI as an indispensable partner in education. Each principle underscores the necessity of a balanced approach that maximizes AI's strengths while mitigating its potential drawbacks.

Principles such as customizing AI interactions to fit educational needs, harnessing AI to simulate and enhance human textual interactions, and emphasizing ethical usage are particularly crucial. They highlight the importance of adapting AI applications to improve educational outcomes in a responsible manner. Together, these guidelines not only facilitate the creation of enriched and dynamic learning environments but also ensure these environments are ethically sound, preparing students for a future where AI is seamlessly integrated into everyday life.

While this article is an opinion piece that proposes these principles based on our experiences and observations, it serves as a starting point for broader discussions on how to effectively partner with Generative AI in the field of education. By embracing these principles, educators and institutions can ensure that AI is not merely a technological add-on but a transformative force in the educational journey, opening up new possibilities for teaching and learning in an AI-enhanced world.

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