



Harnessing AI for Bilingual Education

Empowering Teachers with Generative AI

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AI for Bilingual Education

Artificial Intelligence (AI) offers tremendous opportunities to facilitate the work we do as bilingual teachers. By integrating AI tools into our teaching practices, we can provide personalized learning experiences tailored to each student's unique needs and create engaging, interactive lessons that foster both language and academic proficiency.

AI assists in generating bilingual educational materials, automating routine tasks, and providing insights into student progress, allowing us to focus more on meaningful interactions and effective teaching strategies. This technological advancement not only enhances our instructional capabilities but also enriches the learning environment for our students, making bilingual education more dynamic.



What is AI?

AI refers to the ability of machines to perform tasks that typically require human intelligence. This transformation is driven by advancements in computing power and the availability of vast amounts of data, enabling AI systems to learn and improve continuously.

A key component of this revolution is the development of Large Language Models (LLMs), a type of AI specialized in understanding and generating human-like text. These models, trained on massive datasets, can comprehend context, answer questions, and even create new content on a myriad of topics.



Key Concepts:

- **Artificial Intelligence (AI):** The field of computer science focused on creating systems that can perform tasks typically requiring human intelligence.
- **Machine Learning (ML):** A subset of AI that involves algorithms that improve through experience and data.
- **Large Language Models (LLMs):** Advanced AI systems trained on vast amounts of text data to understand and generate human-like text.
- **Generative AI:** A subset of AI focused on creating new content. Uses machine learning models to generate text, images, audio, or other data
- **GPT (Generative Pre-trained Transformer) models:** Increasingly sophisticated language models capable of various tasks.
- **Multimodal AI:** Systems that can process and generate multiple types of data (text, images, audio).
- **Few-shot and zero-shot learning:** Models that can perform tasks with minimal or no specific training.
- **AI in specialized domains:** Advancements in healthcare, scientific research, and creative fields.
- **Ethical AI and bias mitigation:** Ongoing efforts to address fairness and transparency in AI systems.

AI in education is not about replacing teachers but enhancing the teaching process. It provides teachers with more tools to help them deliver a better education.



Notable examples of modern Large Language Models include **ChatGPT, Gemini, and Claude**. These AI assistants are capable of engaging in conversations, assisting with writing tasks, and explaining complex subjects, among other functions.

ChatGPT



ChatGPT is an AI language model developed by OpenAI. It's based on the GPT (Generative Pre-trained Transformer) architecture and is known for its ability to engage in human-like conversations, answer questions, and assist with various tasks such as writing, coding, and problem-solving. ChatGPT gained widespread popularity upon its public release in late 2022, sparking increased interest in AI technologies among the general public.

Gemini

Gemini is a multimodal AI model developed by Google. It's designed to understand and process various types of input, including text, images, audio, and video. Gemini comes in different versions optimized for various tasks and computational requirements. It's notable for its ability to reason across different types of information and perform complex tasks that require understanding multiple modes of input simultaneously.



Claude

Claude is an AI assistant created by Anthropic. It's designed to be *"helpful, honest, and safe"*. Claude excels in a wide range of tasks including analysis, writing, coding, and creative projects. It's known for its strong language understanding, sophisticated communication, and ability to follow complex instructions.



AI's Role in Revolutionizing Education

- **Personalized Learning:** AI systems can adapt to individual student needs, providing customized learning paths, pacing, and content. This allows for more effective and engaging learning experiences tailored to each student's strengths and weaknesses.
- **Intelligent Tutoring:** AI-powered tutors can provide 24/7 support, answering questions, explaining concepts, and offering guidance. This gives students access to immediate help outside of classroom hours.
- **Automated Grading and Feedback:** AI can assist in grading objective assessments and even provide initial feedback on essays, freeing up teacher time for more complex instructional tasks.
- **Content Creation:** Teachers can use AI to help generate lesson plans, quizzes, and educational materials, saving time and providing diverse resources.
- **Language Learning:** AI tools offer interactive language practice, real-time translation, and pronunciation feedback, enhancing language acquisition.
- **Accessibility:** AI-powered tools can provide real-time captioning, text-to-speech, and other accessibility features to support students with diverse needs.
- **Administrative Tasks:** AI can streamline administrative processes like scheduling, record-keeping, and communication, allowing educators to focus more on teaching.
- **Data-Driven Insights:** AI analysis of student performance data can provide valuable insights to educators, helping identify areas where students need additional support.
- **Virtual and Augmented Reality:** AI-enhanced VR and AR experiences create immersive learning environments for subjects like history, science, and geography.
- **Plagiarism Detection:** Advanced AI algorithms can more effectively detect and prevent academic dishonesty.
- **Collaborative Learning:** AI can facilitate and enhance group projects by suggesting optimal team compositions and providing tools for effective collaboration.
- **Continuous Assessment:** AI enables more frequent and less intrusive assessment of student progress, allowing for timely interventions.





Enhancing Bilingual Education with AI

Integrating AI tools like ChatGPT, Gemini, and Claude into bilingual education settings can significantly enhance learning experiences. Here's a detailed approach to seamlessly incorporating these tools:

Translation and Comparative Analysis:

- Use AI tools to translate texts between the two languages, then have students analyze and compare the translations.
- Encourage students to identify idiomatic expressions, and cultural references that may not translate directly.
- Use this as a springboard for discussions about language and cultural differences.

Content Creation and Adaptation:

- Use AI to help create bilingual materials, such as worksheets, reading passages, or quizzes.
- Have the AI generate content in one language, then task students with translating it to the other language, comparing their translations with the AI's suggestions.
- Use AI to simplify complex texts in either language, making them more accessible for learners at different proficiency levels.

Vocabulary Enhancement:

- Use AI to generate word lists, synonyms, antonyms, and example sentences in both languages.
- Create vocabulary games where the AI provides definitions or contexts, and students guess the word in either language.
- Use AI to explain idioms and colloquialisms in both languages, providing cultural context.

Grammar Instruction and Practice:

- Use AI to generate examples of specific grammar structures in both languages.
- Have students practice identifying and correcting grammatical errors in AI-generated text.
- Use AI to explain grammar rules and provide comparative analysis between the two languages.

Writing Assistance:

- Encourage students to use AI as a writing aid, getting feedback on structure, style, and language use in both languages.
- Have students write in one language and use AI to help translate or adapt their work to the other language.
- Use AI to suggest improvements or alternatives in both languages..

Cultural Education:

- Use AI to generate information about cultural aspects related to both languages.
- Create virtual cultural exchange scenarios where students interact with the AI to learn about customs, traditions, and social norms.
- Have AI generate culturally relevant texts or scenarios for discussion and analysis.

Differentiated Instruction:

- Use AI to generate materials at different difficulty levels to cater to diverse proficiency levels within the classroom.
- Create personalized learning paths for students based on their strengths and areas for improvement in each language.

Assessment and Feedback:

- Use AI to help create bilingual assessments, ensuring balanced representation of both languages.
- Employ AI for initial grading of objective questions and to provide preliminary feedback on written work in both languages.
- Use AI-generated insights to identify areas where students might be struggling in either language.

Language Practice and Conversation:

- Use AI assistants as conversation partners for students to practice their target language.
- Set up guided dialogues where students interact with the AI in both languages, focusing on specific vocabulary or grammar structures.
- Have students use the AI to role-play various scenarios, switching between languages as appropriate.

Project-Based Learning:

- Incorporate AI tools into bilingual projects, such as creating a bilingual blog or podcast.
- Use AI to help students research topics in both languages, synthesizing information from diverse sources.

Parent Communication:

- Utilize AI translation capabilities to facilitate communication with parents who may be more comfortable in one language over the other.

Teacher Professional Development:

- Use AI tools to help teachers improve their own language skills and cultural knowledge.
- Generate lesson plan ideas and teaching strategies specifically tailored for bilingual classrooms.

AI is reshaping education, but the goal is to enhance educational experiences and outcomes while allowing educators to focus on the irreplaceable aspects of human interaction and mentorship.

Mastering Prompt Engineering



Prompt engineering is a crucial skill for educators who want to integrate AI tools like ChatGPT into bilingual education. By crafting precise, context-rich instructions, teachers can unlock the full potential of these AI assistants to enhance their teaching practices. Effective prompts lead to more accurate, relevant, and tailored responses, saving time and improving the quality of AI-generated content for lesson planning, resource creation, and student support.

Understanding Prompt Engineering:

Prompt engineering is the skill of crafting clear, specific instructions (prompts) for AI tools to get the most accurate and useful responses. It's crucial because these AI assistants, while powerful, don't inherently understand context or intent the way humans do. They respond based on the information and instructions you provide.

Why Prompt Engineering Matters:

- **Precision:** The more specific your prompt, the more precise the AI's response will be. Vague questions often lead to vague or irrelevant answers.
- **Relevance:** Well-crafted prompts help ensure that the AI's response is directly relevant to your needs or your students' needs.
- **Efficiency:** Good prompts save time by getting you the information or assistance you need more quickly, without the need for multiple follow-up questions.
- **Customization:** Detailed prompts allow you to tailor the AI's output to your specific educational context, grade level, or subject matter.
- **Consistency:** Clear instructions help maintain consistency in the AI's responses, which is particularly important in educational settings.
- **Creativity:** Thoughtful prompts can guide the AI to generate more creative or innovative ideas for lessons or activities.

Examples of Effective Prompt Engineering:

Instead of: "Tell me about photosynthesis."

Try: "Explain photosynthesis in simple terms suitable for 5th-grade students, including a step-by-step breakdown of the process and its importance to plant life."

Instead of: "Give me a writing prompt."

Try: "Create a creative writing prompt for high school students that incorporates elements of science fiction and explores themes of environmental conservation. The prompt should encourage students to write a short story of approximately 500 words."



Key Aspects of Effective Prompts:

- Be specific about the task or information you need.
- Specify the target audience (e.g., grade level, subject).
- Include any relevant context or background information.
- Mention desired format or length of the response.
- Ask for examples or analogies if they would be helpful.
- Request step-by-step explanations for complex topics.

Remember, using AI tools effectively is a skill that improves with practice. Experiment with different prompts and refine your approach based on the results they get.

Examples of AI Prompts for Education

“Generate a list of 10 interactive activities for teaching basic math concepts to emergent bilingual students in 5th grade. Each activity should incorporate visual aids and be explained in both English and Spanish.”

“Create three versions of a paragraph explaining the process of photosynthesis to 4th-grade students, with each version suited to beginner, intermediate, and advanced English proficiency levels. Include translations and simple explanations in Spanish.”

“Review the following student essay for grammar and language use errors, providing feedback in Spanish.”

“Create a classroom role-play scenario for 7th-grade students to practice asking and giving directions in Spanish, ensuring it includes realistic and culturally appropriate dialogues.”

“Generate a bilingual glossary of key terms related to photosynthesis for 5th-grade science students. Include definitions and simple example sentences in both English and Spanish.”

“Draft a bilingual letter to parents explaining the importance of reading at home and providing tips on how to support their child’s bilingual reading development.”

“Write a short guide in both English and Spanish for parents on how to help their children with homework, including practical tips and strategies.”

“Summarize recent research findings on effective strategies for teaching reading to emergent bilinguals in elementary school. Include practical recommendations for classroom implementation.”



Having Your Own Assistant

Custom AI Models in Education

Imagine having a personal assistant that follows your specific instructions and supports you in your educational tasks. By creating custom AI models with tools like **OpenAI's Custom GPTs** and **Anthropic's Claude Projects**, educators can harness the power of AI to perform tailored tasks using their own documents and instructions. This customization allows for a more personalized and efficient approach to teaching and learning.

With custom GPTs, you can design AI models that align with your specific curriculum, providing personalized tutoring and content creation for your students. These AI assistants can help analyze large volumes of literature, generate summaries, and even suggest research directions, saving you valuable time and enhancing your educational materials. Similarly, using Anthropic's Claude, you can develop AI models fine-tuned to your unique requirements, ensuring that the AI's capabilities are perfectly matched to your teaching needs.

By integrating these custom AI solutions into your educational practices, you essentially gain a dedicated assistant that can support a wide range of tasks, from generating lesson plans to offering instant feedback on student work. This innovative approach not only enhances your teaching efficiency but also enriches the learning experience for your students, making education more dynamic and accessible.



Learn more about OpenAI's GPT

<https://openai.com/index/introducing-gpts/>



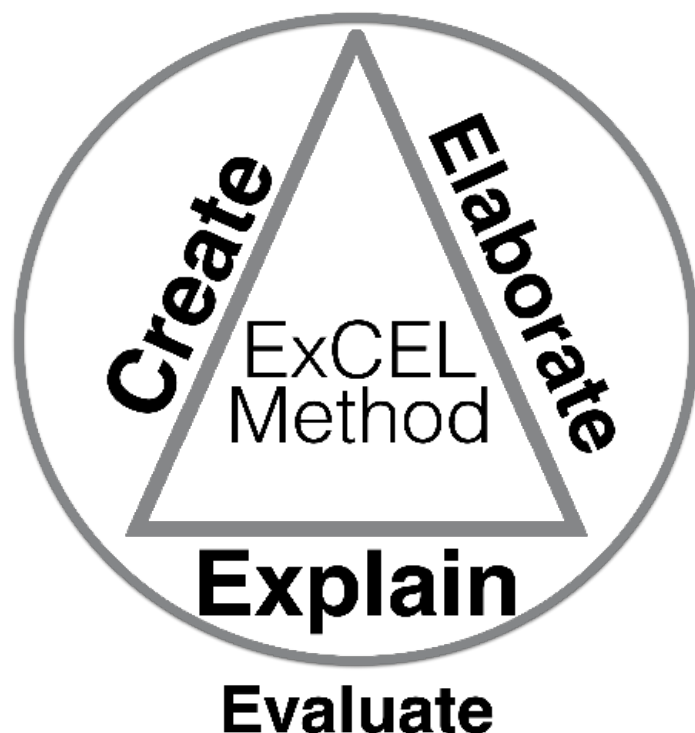
Learn more about Anthropic's Claude Projects

<https://www.anthropic.com/news/projects>



The ExCEL Model for Multilingual Learners

Supporting multilingual learners goes beyond simply teaching vocabulary and grammar. To make learning truly impactful, we need to provide immersive environments where students can use the language in meaningful, engaging, and even playful ways. This is where the ExCEL method, combined with carefully selected instructional technology tools and the recommended AI tools discussed in this document, shines. By integrating these approaches, we can create more engaging learning experiences for our emergent bilingual students, fostering deeper understanding and greater confidence in using the new language.



The Power of Focus

Drawing from our experience in the classroom, we know that employing the ExCEL method of instruction enhances the learning journey for emergent bilingual students. The ExCEL method, inspired by the 5 Es Model of Instruction, stands for **Explain, Create, and Elaborate** and is designed to make learning deeply meaningful and practical.

In the **Explain** stage, concepts are introduced in an accessible and relevant manner, connecting new ideas to students' real-life experiences and utilizing visual imagery to aid comprehension. One of the most effective ways to introduce new vocabulary, concepts, and objectives is by linking them to students' prior knowledge and cultural heritage. Employing culturally relevant pedagogy techniques and first language mental images can significantly enhance understanding and retention. An essential strategy in this stage is the use of tiered vocabulary instruction, developed by Dr. Isabel L. Beck. This approach helps in identifying which vocabulary words to teach, focusing on Tier 2 and Tier 3 words. Tier 2 words are those frequently used across various academic subjects, such as "analyze," "estimate," and "determine." Tier 3 words are highly specific to particular content areas, like "parabola," "hypotenuse," and "osmosis." By concentrating on these tiers and connecting them to students' existing knowledge and cultural backgrounds, educators can ensure that emergent bilingual learners grasp critical academic vocabulary. This approach makes complex concepts more understandable and engaging, ultimately facilitating deeper learning and retention.

The **Create** stage draws inspiration from the work of Dr. Seymour Papert and his theory of Constructionism. According to Papert, deep learning emerges when students explore and play with ideas by creating personal, self-driven projects. In this stage, students make their own “objects-to-think-with,” which are physical representations of their understanding of the learned material. Technology offers wonderful creative tools that allow students to express their ideas and apply their newly acquired knowledge in meaningful ways. This hands-on approach is invaluable for language learners, as it provides them with opportunities to use both languages in context, thereby reinforcing their language skills in a meaningful and memorable way.

Finally, the **Elaborate** stage invites students to expand on what they have learned and apply it in new, playful, or more complex projects. Drawing on Vygotsky’s social development theory, this stage emphasizes the importance of social interactions in cognitive development. Using the ideas of Gamification, Game-based learning, and Playful Learning, recommended activities include challenging games that require higher-order thinking and collaboration. These activities encourage students to use their newly gained knowledge to succeed in the games. Guided by teachers or more knowledgeable peers, students benefit greatly from social interactions that mediate and enhance their learning. This phase continues to promote critical thinking and creativity, encouraging emergent bilingual students to use the targeted academic language in diverse contexts and helping to solidify their understanding and confidence in using the new vocabulary.

Evaluate

A fundamental element of the ExCEL method is the incorporation of continuous formative assessment throughout the lesson. This approach emphasizes two crucial aspects of the learning process. First, it empowers educators to monitor students’ progress and understanding in real time, ensuring they acquire the necessary vocabulary and content knowledge. Second, it encourages teachers to critically evaluate their own work and how they present information. This focus on reflection helps educators continually refine their approach, ensuring that they are providing the most effective learning experiences possible for multilingual learners.



“We learn best when we are actively involved in making things, when we are engaged in creating something that is meaningful to us.”

Dr. Seymour Papert



Technology as the Accelerator

Technology acts as an accelerator in the ExCEL method by transforming each stage into a more engaging and interactive experience. During the Explain phase, technology allows for multimedia presentations and interactive visuals, making complex concepts more accessible. In the Create stage, students can leverage collaborative tools and multimedia project creation software to solidify their understanding through hands-on activities. Finally, the Elaborate stage is supercharged by technology through creative expression tools and simulations or online games allowing students to explore concepts in new and playful ways. This multifaceted approach enhances learning by catering to diverse learning styles and keeping students actively involved throughout the process.

Why This Works for Multilingual Learners

The ExCEL method, with these integrated technology tools, creates environments where multilingual learners can:

- **Builds Confidence:** Safe spaces for writing, speaking, and collaborating reduce anxiety.
- **Learn Through Play:** Games and simulations offer low-pressure language practice.
- **Connect to the Real World:** Multimedia tools bring concepts to life, making the abstract tangible.
- **Receive Timely Feedback:** Formative assessment tools help teachers identify and address learning needs promptly.

Enhancing the ExCEL Method with AI Tools

To implement the ExCEL Method of Instruction effectively in a bilingual classroom, educators can leverage AI tools to enhance their teaching strategies. Here's how you can integrate this method with the support of AI:

Explaining Concepts: Use AI tools to generate clear, comprehensible explanations of new concepts in both languages. You can input specific topics and receive tailored explanations that can be used directly in the classroom or adapted for different proficiency levels. Additionally, you can ask AI tools to generate images to illustrate ideas or concepts, create concept maps or diagrams, and make connections to students' first language and culture. These visual aids can significantly enhance understanding and retention of new information.

Creating Engaging Activities: AI tools can assist you in brainstorming hands-on activities that align with the ExCEL framework. For instance, you can ask for project ideas that allow students to create products demonstrating their understanding of a concept, ensuring these activities are culturally relevant and engaging. You can also request playful learning activities or games from AI tools, which can make learning more interactive and enjoyable. These activities can include educational games that reinforce the concepts being taught, encourage collaboration, and enhance critical thinking skills. By incorporating these engaging elements, you can create a more dynamic and stimulating learning environment for your students.

Elaborating on Knowledge: You can utilize AI tools to develop questions and prompts that encourage students to elaborate on their learning. This could include generating discussion questions or writing prompts that require students to connect new knowledge with prior experiences or other subjects. Additionally, you can ask AI tools for engaging activities such as games, scenarios for role-play activities, and ideas for digital storytelling projects. AI tools can also provide questions for online games and platforms like Kahoot, Quizlet, or other interactive educational tools. These varied activities help students deepen their understanding, apply their knowledge in different contexts, and develop critical thinking and creativity skills.

Formative Assessment Ideas: AI tools can help you design formative assessments that are varied and interactive. You can request examples of quizzes, peer review formats, self-assessment tools, or rubrics that can be used to gauge student understanding throughout the lesson.

Differentiation Strategies: By inputting specific student needs or proficiency levels, you can receive tailored differentiation strategies. AI tools can suggest modifications to tasks or provide resources that cater to diverse learning styles and language proficiencies.

Integrating Technology: You can ask AI tools for recommendations on digital tools and resources that can enhance the ExCEL Method. This includes finding apps for vocabulary development, platforms for collaborative projects, or multimedia resources that support content learning in both languages.

Culturally Relevant Content: You can use AI tools to find or create culturally relevant materials that resonate with your students' backgrounds. This can include literature, historical examples, or current events that can be discussed in both languages.



Customizing GPTs for the Classroom

What Are GPTs?

Generative Pre-trained Transformers (GPTs) are AI-powered language models developed by OpenAI that can generate human-like text, answer questions, and assist in various language-related tasks. These models have been trained on vast amounts of text data, enabling them to understand context, generate responses, and assist with writing, translation, summarization, and content creation.

OpenAI allows users to create Custom GPTs, meaning educators can tailor the AI's behavior, tone, and responses to fit their specific classroom needs. This customization enables teachers to enhance bilingual instruction by creating AI assistants that support language learning, generate materials, and facilitate engagement in both English and Spanish.

How Can Teachers Use GPTs in the Bilingual Classroom?

Custom GPTs are more than just AI chatbots, they are customizable assistants that can be precisely tailored to the needs of bilingual educators. What makes them so powerful is that teachers can fine-tune their behavior without any coding, simply by providing detailed instructions and reference materials.

Unlike a general-purpose AI, a Custom GPT can be trained to follow specific models, frameworks, and criteria that a teacher sets. This means educators can:

- **Define exactly how the GPT should respond**—whether it's writing in a formal or informal tone, explaining concepts step by step, or following a structured format.
- **Provide models for the AI to follow**—such as a specific format for lesson plans, worksheets, or instructional materials.
- **Upload documents that the AI can reference**—such as curriculum standards, bilingual education guides, or instructional frameworks like the ExCEL Method, ensuring that AI-generated content aligns with best practices.
- **Set clear criteria for outputs**—for example, by providing a rubric or evaluation framework, the AI can generate assessment criteria tailored to a specific learning objective (without using student data).
- **Automate time-consuming tasks**—such as generating bilingual vocabulary lists, creating culturally relevant reading materials, or adapting lesson plans for different proficiency levels.

The ability to customize AI to fit a specific teaching style or instructional approach makes Custom GPTs a game-changer in bilingual education. Instead of manually designing lesson materials from scratch, teachers can leverage AI-powered assistants that generate bilingual content aligned with their curriculum, freeing up valuable time for direct student engagement.



Step-by-Step Guide to Customizing a GPT for Bilingual Education

Creating a Custom GPT in OpenAI is simple and allows teachers to personalize AI behavior. Here's how you can build an AI assistant tailored to your classroom:

Step 1: Access OpenAI's ChatGPT Customization Tool

1. Go to <https://chatgpt.com/> and log in to your OpenAI account.
2. Navigate to the "**Explore GPTs**" section.
3. Click "**Create a GPT.**" This will guide you through setting up your own custom AI assistant.

Step 2: Define the AI's Purpose

- In the settings, clearly define what your AI will do:
- Example: "This GPT assists bilingual teachers in creating lesson plans, worksheets, and culturally relevant materials for students learning English and Spanish."
- Think about tone and style: Should it be formal? Conversational? Should it provide explanations for teachers?

Step 3: Customize Instructions for Your AI

- The system allows you to input custom instructions to guide responses. Some key customizations include:
- Behavior Instructions: Specify how the AI should respond.
- Example: "Always provide bilingual responses. If a teacher asks for a story, generate one in both English and Spanish."
- Content Guidelines: Set boundaries for what the AI should or shouldn't generate.
- Example: "Avoid complex vocabulary when simplifying texts for emergent bilingual students."
- Preferred Format: Define how information should be structured.
- Example: "For lesson plans, always include objectives, materials, and step-by-step activities."

Step 4: Upload Reference Materials (Optional)

- You can upload documents to help the AI generate more relevant responses:
- Bilingual curriculum guides
- Vocabulary lists
- Teaching frameworks (such as the ExCEL Method)
- These files provide context so the AI can align responses with your teaching philosophy.

Step 5: Test and Refine

- Test different prompts to see how the AI responds:
- "Generate a bilingual worksheet on weather vocabulary."
- "Create a lesson plan for teaching past tense verbs in Spanish and English."
- Make adjustments if the responses aren't exactly what you need.
- You can tweak instructions or add more specific guidelines.

Thank You!

Thank you for participating in our presentation and for taking the time to read this guide.
We invite you to continue the conversation on our blog:

<https://www.enablinglearning.com/blog/>

Visit our website for additional webinars and resources for bilingual education.

References:

- Anthropic PBC. (n.d.). Meet Claude \ Anthropic. 2024. Retrieved July 22, 2024, from <https://www.anthropic.com/claude>
- Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. IEEE Access, 8. <https://doi.org/10.1109/ACCESS.2020.2988510>
- Chen Liu, A. C., Kin Law, O. M., & Law, I. (2022). Understanding Artificial Intelligence: Fundamentals and Applications. In Understanding Artificial Intelligence: Fundamentals and Applications. <https://doi.org/10.1002/9781119858393>
- Duff, P. A. (2015). Transnationalism, multilingualism, and identity. Annual Review of Applied Linguistics, 35. <https://doi.org/10.1017/S026719051400018X>
- Enabling Learning LLC. (2024). Enhancing AI Interactions in Teacher Education – Enabling Learning LLC. <https://www.enablinglearning.com/enhancing-ai-interactions-in-teacher-education/>
- French, F., Levi, D., Maczo, C., Simonaityte, A., Triantafyllidis, S., & Varda, G. (2023). Creative Use of OpenAI in Education: Case Studies from Game Development. Multimodal Technologies and Interaction, 7(8). <https://doi.org/10.3390/mti7080081>
- García, O., & Wei, L. (2013). Translanguaging: Language, bilingualism and education. In Translanguaging: Language, Bilingualism and Education. <https://doi.org/10.1057/9781137385765>
- González-Calatayud, V., Prendes-Espinosa, P., & Roig-Vila, R. (2021). Artificial intelligence for student assessment: A systematic review. In Applied Sciences (Switzerland) (Vol. 11, Issue 12). <https://doi.org/10.3390/app11125467>
- Haenlein, M., & Kaplan, A. (2019). A brief history of artificial intelligence: On the past, present, and future of artificial intelligence. California Management Review, 61(4). <https://doi.org/10.1177/0008125619864925>
- Hellman, A. B. (2018). Teaching tiered vocabulary. In The TESOL Encyclopedia of English Language Teaching. <https://doi.org/10.1002/9781118784235.eelt0751>
- Hernández, L. (2023). Navigating the Bilingual Education Supplemental (164): A comprehensive preparation guide and practice exam. Enabling Learning LLC.
- How artificial intelligence is transforming the world. (n.d.). Retrieved October 22, 2022, from <https://www.brookings.edu/research/how-artificial-intelligence-is-transforming-the-world/>
- Introducing Gemini: Google's most capable AI model yet. (n.d.). Retrieved July 22, 2024, from <https://blog.google/technology/ai/google-gemini-ai/>
- Nortvedt, G. A., Wiese, E., Brown, M., Burns, D., McNamara, G., O'Hara, J., Altrichter, H., Fellner, M., Herzog-Punzenberger, B., Nayir, F., & Taneri, P. O. (2020). Aiding culturally responsive assessment in schools in a globalising world. In Educational Assessment, Evaluation and Accountability (Vol. 32, Issue 1). <https://doi.org/10.1007/s11092-020-09316-w>
- OpenAI. (2024). Prompt engineering - OpenAI API. <https://platform.openai.com/docs/guides/prompt-engineering>
- Ouyang, F., & Jiao, P. (2021). Artificial intelligence in education: The three paradigms. Computers and Education: Artificial Intelligence, 2. <https://doi.org/10.1016/j.caeai.2021.100020>
- Papert, S. (1980). Mindstorms: Children, computers, and powerful ideas (Second). Basic Books, Inc.
- Papert, S., & Harel, E. (1993). Constructionism. Ablex Publishing.
- Russell, S., & Bohannon, J. (2015). Artificial intelligence. Fears of an AI pioneer. Science (New York, N.Y.), 349(6245).
- Sandrone, S., & Carlson, C. (2021). Gamification and game-based education in neurology and neuroscience: Applications, challenges, and opportunities. In Brain Disorders (Vol. 1). <https://doi.org/10.1016/j.dscb.2021.100008>
- Xiaohong, W., & Yanzheng, W. (2021). The Application of Artificial Intelligence in Modern Foreign Language Learning. ACM International Conference Proceeding Series. <https://doi.org/10.1145/3451400.3451406>



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