ASU lab addresses need for culturally sensitive multilingual AI learning tools

AI and Multilingualism Lab allows for development of ethical, transparent and socially responsible language learning tools

By Thit Thit T Win, ASU News
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When a Spanish-Quechua speaker in Ecuador switches between the two languages while searching for health information online, rather than recognizing their natural bilingual communication, AI flags it as broken language.

That's because the AI behind most language tools was not built with them in mind. It was trained on standard, monolingual data.

"If an AI system does not understand linguistic variation, it can mistake difference for deficiency," said Olga Kellert, associate professor at Arizona State University's School of International Letters and Cultures, a unit within The College of Liberal Arts and Sciences.

Kellert leads a project that applies AI and computational methods to health communication for Spanish-Quechua speakers in Ecuador and Peru. Originally supported by the German Research Foundation, the research examines how bilingual populations access and interpret health information, including communication about COVID-19.

"Most digital language tools are developed for a relatively small number of globally dominant languages," Kellert said. "Many Indigenous languages, including Quechua, have far fewer computational resources."

Research at ASU's AI and Multilingualism Lab, where Kellert's project is housed, works to close that gap.

Starting with how people actually speak

Rather than training AI on textbook language, Kellert's team works with real interactions collected from classrooms and communities.

"Language learning happens in real interactions, and those interactions are messy, variable and deeply human," she said. "Students do not always produce the kind of language that appears in textbooks. They hesitate, repair what they say, switch languages, use regional varieties and develop in different ways."

This is deeply interdisciplinary work. Kellert collaborates with ASU's School of Computing and Augmented Intelligence, supervising a master's student and a PhD student. The team also works with the University of A Coruña in Spain.

"As linguists, we ask: What exactly is the speaker doing here? Is this an error, a dialectal form, code-switching or a normal feature of bilingual communication?" Kellert said. "Computer scientists ask how we can represent that information computationally and build systems that can detect it reliably."

Students in the lab work with real linguistic data at every stage, from collection and annotation to analysis with Python and NLP tools.

"We want students to see that they don't have to choose between the humanities and technology," she said.

What a language lab has to do with AI

The AI and Multilingualism Lab is directed by Marta Tecedor Cabrero, associate professor of Spanish, and it brings together faculty across the School of International Letters and Cultures who have worked for years in computer-assisted language learning, computational linguistics and digital humanities.

"The lab is a space for thinking critically about the use of AI as it relates to multilingual practices," Tecedor Cabrero said. "Language permeates every area of human knowledge, and we in the humanities play an important role in contributing to our collective understanding of this new technology — because we are language and culture experts, not the machines."

The lab's projects range from computational analysis of ancient poetry to research on how literature has shaped human responses to artificial beings, to an international collaboration training AI to analyze a century of Latin American immigration laws.

Its most student-facing tool, Language Buddy, is an AI conversation partner integrated into Canvas. Developed through the ASU AI Innovation Challenge and now being expanded with EdPlus, it has been tested in 12 Spanish 101 sections, with 334 of 679 enrolled students interacting with it across 801 conversations.

Tecedor's own research has produced a counterintuitive finding: Students who only practiced with human partners ended up more willing to try speaking with an AI bot than students who had actually been using one all along.

"We think it may reflect what we call the 'AI hype versus reality effect,'" Tecedor said. "Students in the AI condition had actual firsthand experiences on which to base their responses. Their smaller increase suggests a more realistic understanding of what using an AI avatar bot to practice a second language really entails."

Teachers are not going anywhere

Tecedor said the biggest misconception is that AI will replace human instructors. She sees a parallel that reaches back centuries.

"In medieval times, knowledge was stored in books that were written out and copied manually, so access to knowledge was severely limited," she said. "The invention of the printing press changed learning drastically. We have testimonials from those times of scholars who saw the printing press as a threat to learning for reasons very similar to those we hear today about AI. But just as teachers did not disappear then, I don't think they will disappear today. Because learning is an inherently social activity."

The lab is seeking undergraduate researchers through Barrett College Fellows and the OURS program.

"Facilitating student-faculty collaborations is one of the main goals of the lab," Tecedor said. "Some students are collaborating with us directly on our research, which includes presenting at national and international conferences and co-authoring papers."

Learn more about the AI and Multilingualism Lab at silc.asu.edu/ai-multilingualism-lab.

This story originally appeared on ASU News.

Main image



Faculty and students collaborate at the AI and Multilingualism Lab, housed within ASU's School of International Letters and Cultures. Photo courtesy of Marta Tecedor Cabrero

Text image(s)


NLPerspectives
Structured Disagreement in Health-Literacy Annotation: Epistemic Stability, Conceptual Difficulty, and Agreement-Stratified Inference
Olga Kellert, Sriya Kondury, Candice Koo, Nemika Tyagi, Sarthe Elmhurst
Arizona State University
Introduction
Data & Corpora
Methodology
Variance Decomposition
Agreement Stratified Inference
Discussion
Links and Resources

A student presents research on bilingual health communication at a conference as part of the AI and Multilingualism Lab's work. Photo courtesy of Olga Kellert


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No Food.
Drinks only with
Spill-Proof Lids.
Need
Help?
Please push the
button at the
Support Desk.
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THiNS

A graduate student pilot tests an AI language tool with the assistance of an undergraduate student. Photo courtesy of Marta Tecedor Cabrero