

ASL Educators' Perspectives on AI for Enhancing Student Learning in American Sign Language Education



Saad Hassan



Laleh Nourian



Caluã de Lacerda Pataca



Michelle Olson



Mah Noor Asad



Kanupriya Agarwal



Toni D'aurio



Garreth Tigwell



Matt Huenerfauth



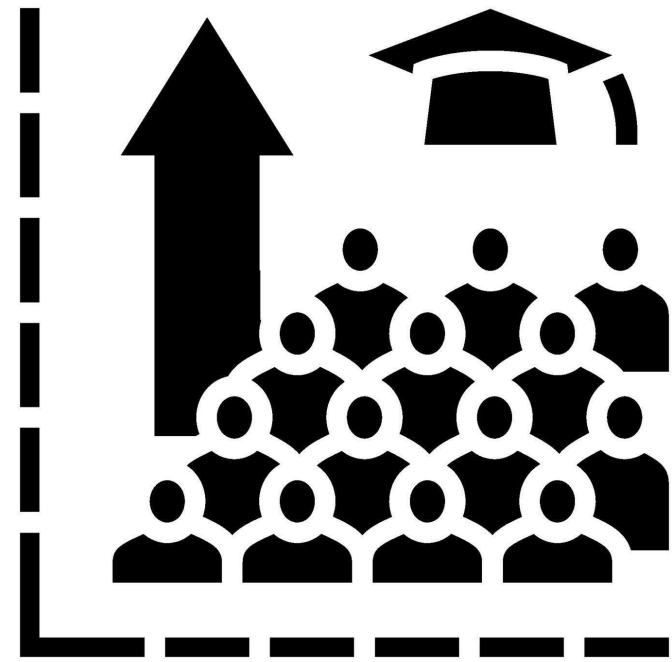
Motivation

Perspectives on AI for ASL Learning

- Sign language learning technologies has primarily focused on applications of **sign recognition technologies** and less on **sign translation** or **generation**
- **Examples:** feature-based dictionaries (Bragg et al., 2015), video-based dictionaries (Hassan et al., 2022; Desai et al., 2025), expressive feedback tools (Huenerfauth et al., 2017), signing avatars on web or VR (Liu et al., 2025)
- Most research has engaged **ASL students**; some research has engaged ASL educators in designing or evaluating comprehension assignments
- **Misconceptions** about sign languages and Deaf culture exist even among those actively building ASL AI systems (Kamikubo et al., 2025)

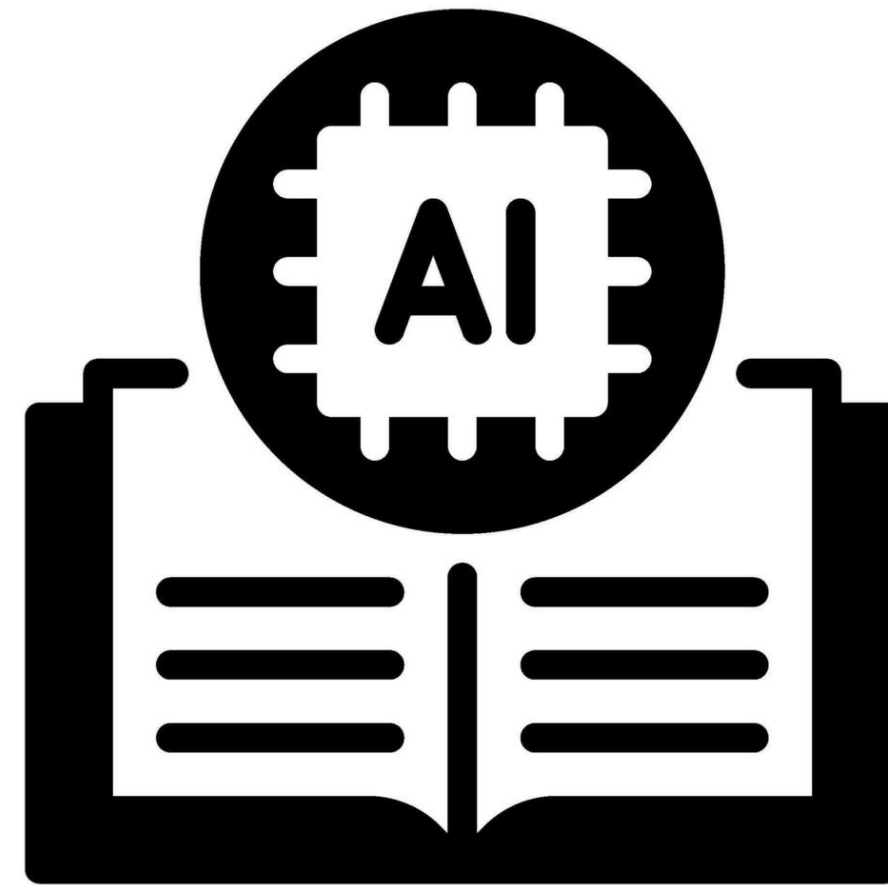
Motivation

Education Research



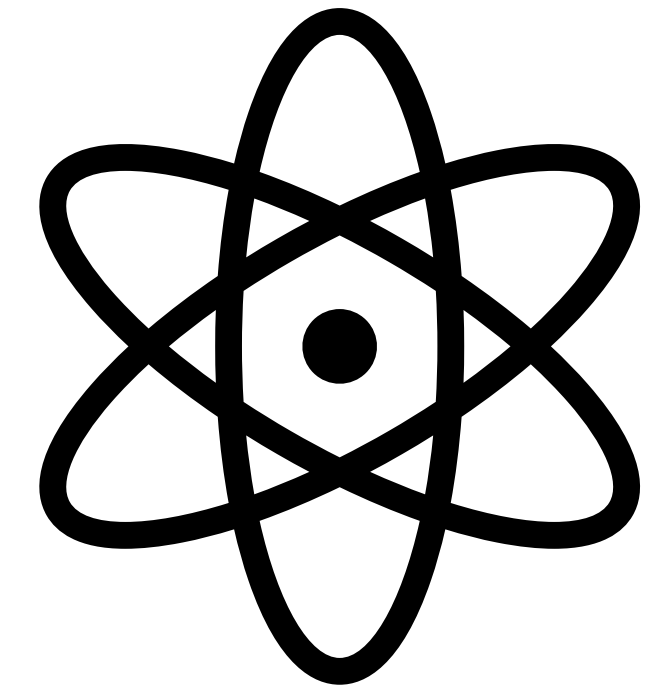
Increasing Enrollments in ASL Classes

over 107,000 students and hundreds of universities and colleges in the U.S.
(Lucin et al., 2021)



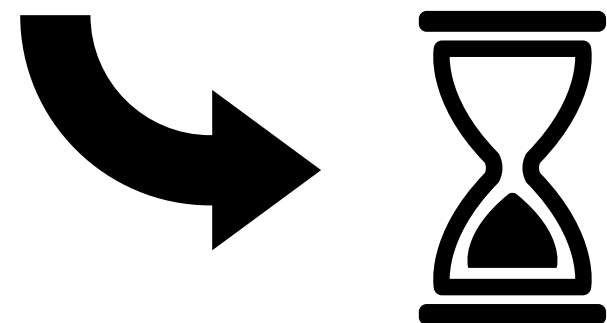
Use of AI in Language Education

a growing body of HCI work on language educators' perceptions of AI tools
(Kim et al., 2022)



Novel ASL Learning Technologies

but ASL educators often relegated to monitoring studies or assessments
“Deaf professors as subaltern?” (McDermid, 2009)



examine how ASL educators envision the role of AI in supporting ASL learners

Research Questions

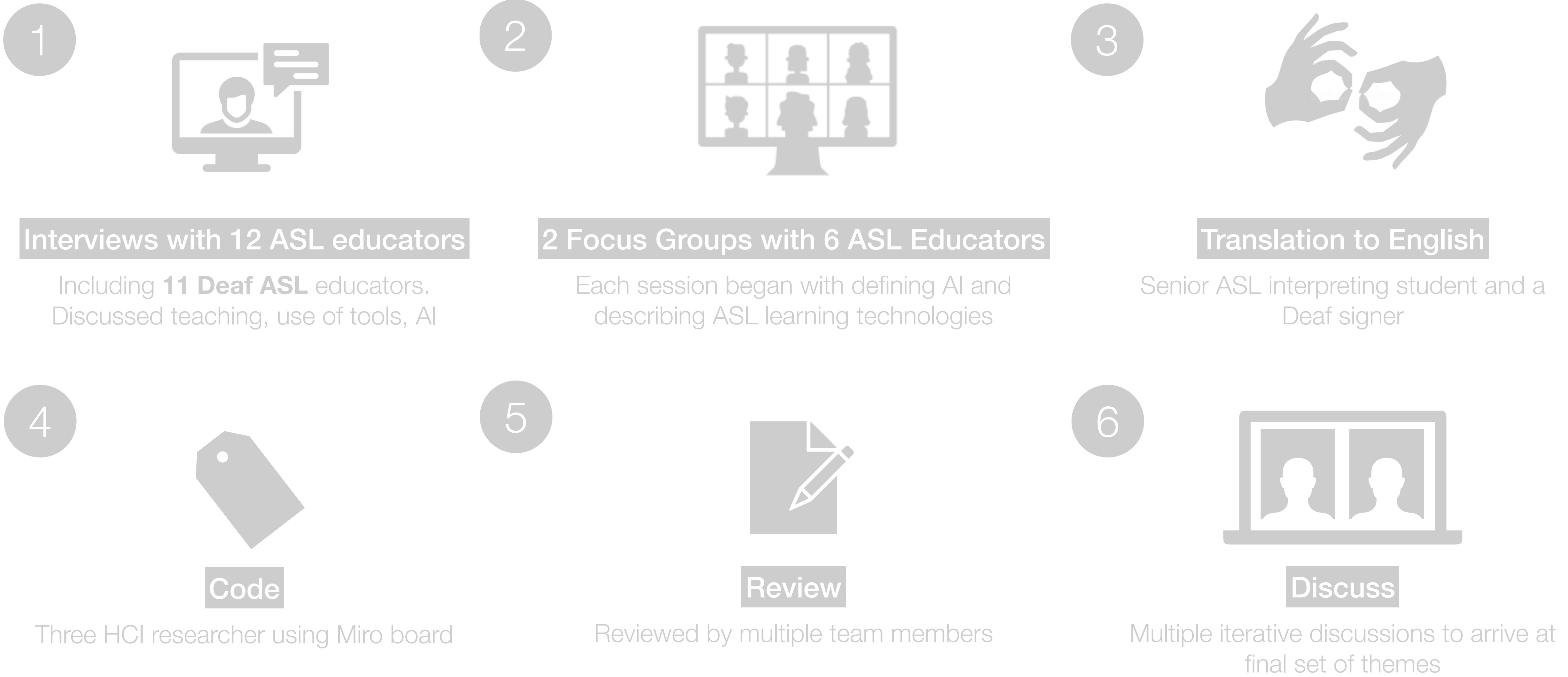
RQ1

What **AI-driven systems or features educators** view as most beneficial for ASL learners?

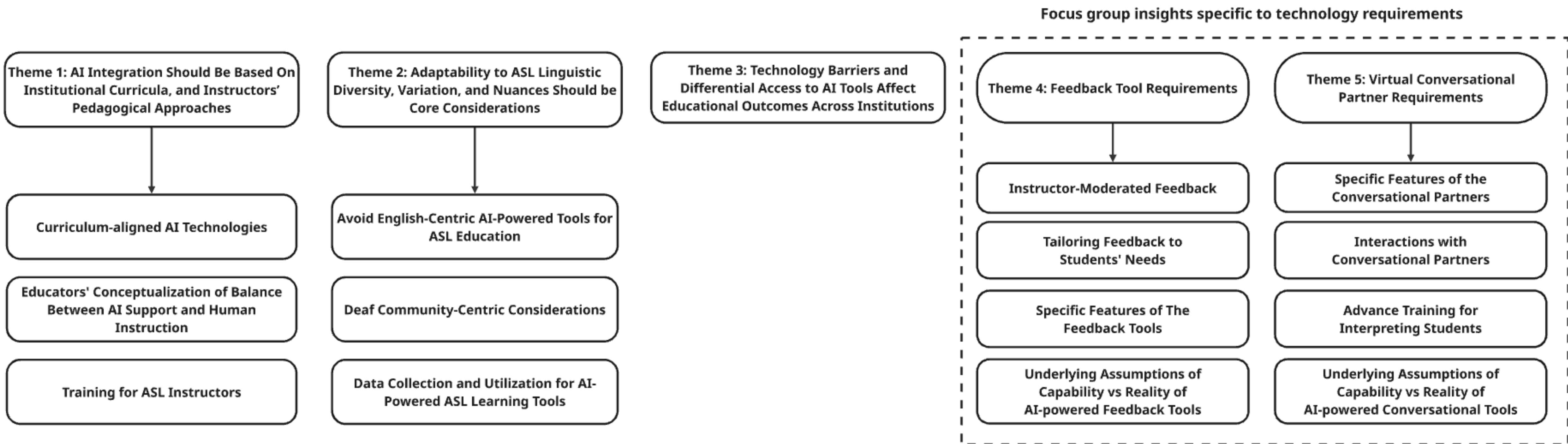
RQ2

How AI-based ASL learning tools should **align with best practices in ASL pedagogy**?

Method



Highlighted Findings | Thematic Map



Theme 1 | Curricula and Pedagogy

Curriculum Alignment

“We want to make sure it can **understand the curriculum** we’re using. Are we using TWA (TRUE+WAY ASL)? Are we using Signing Naturally? Are we using ASLdeafined?”

AI Support vs. Human Interaction

“I do think it would help to lessen the burden, especially with a **large class of students**, making sure that we are helping them to be successful, which is our main goal in the end; **giving individual feedback is a lot**. But we want to be able to use it (AI) as a tool.”

Training

“Is there was a career called ‘AI for ASL?’ Whoever researches it needs to prepare me on how to teach my students about it.”

Theme 2 | Adaptability to Linguistic Diversity

Avoid English Centric Tools

“...doesn’t focus on only **English** words, rather it puts and explains signs, describes the context of that sign [...] For example, the word run, many people assume run means a person running with their legs. But what about a car running? Or a nose running?”

Deaf Community Considerations

“Are they [creators of AI] already **expert curriculum developers**? Or... only computer science majors?”

Data Collection and Utilization

“...a very small percent of the entire world uses sign language.”

Theme 3 | Technology Barriers

Infrastructure

“Here where I work, we don’t have the best technology. If the AI **breaks down**, what do we do?”

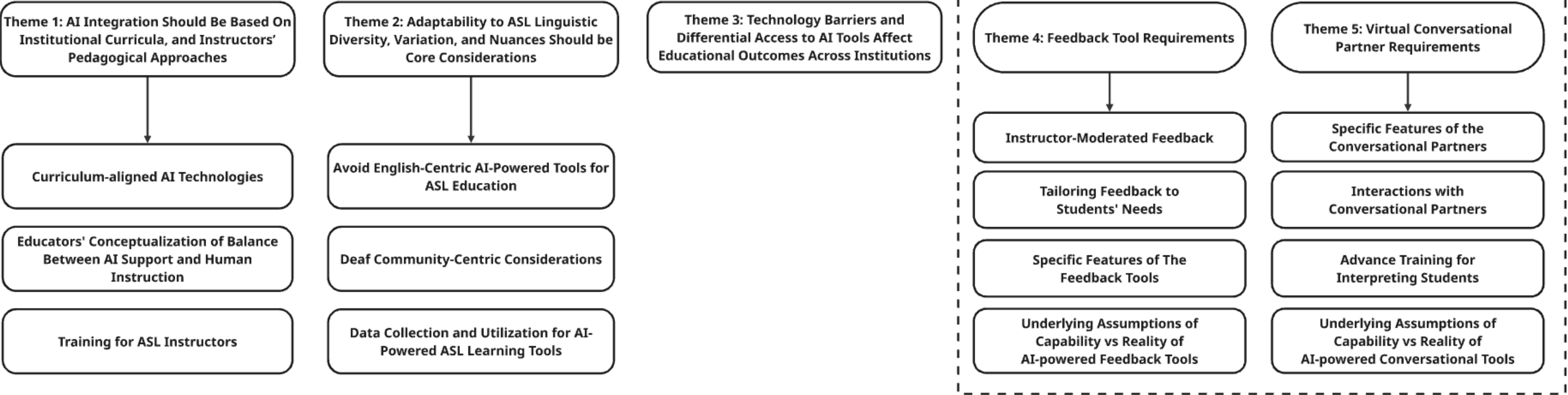
Costs

“Where is this technology coming from? Who’s providing the **equipment**?”

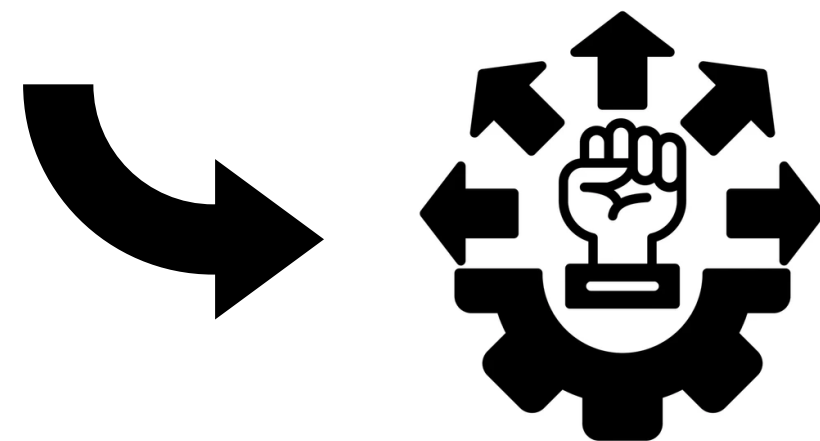
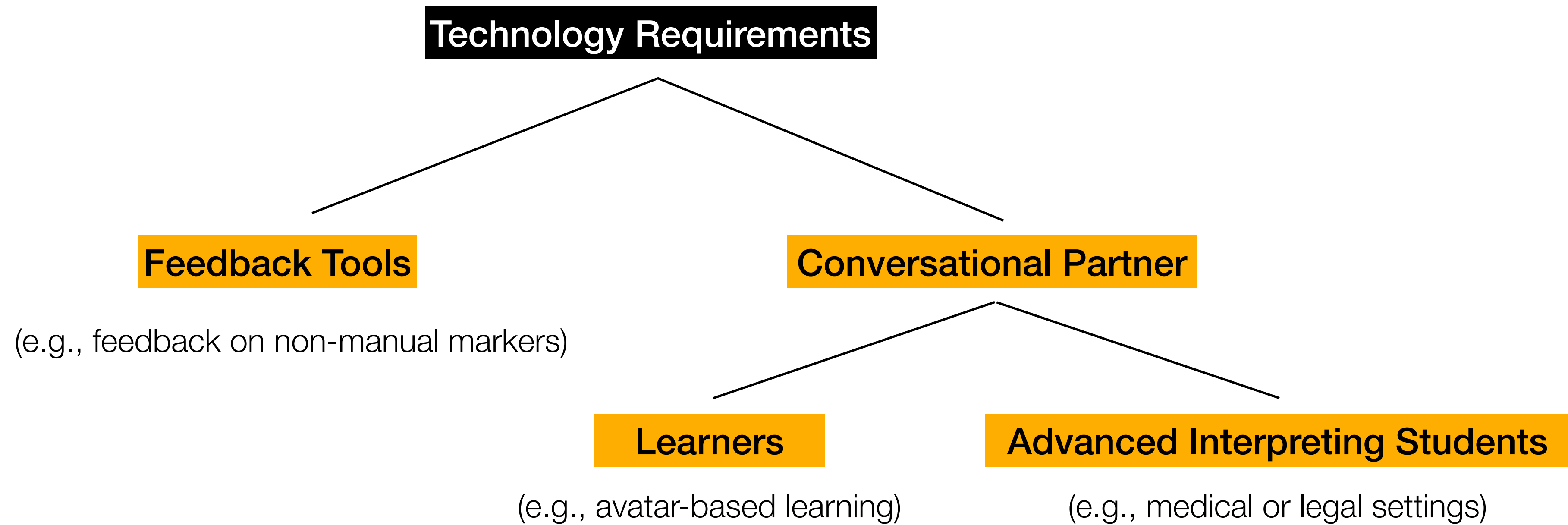
Paywalls

“It could get a **paywall** after a while [...], and anyone who’s going to be able to use that **needs money and education**. So, someday in the future, is it still going to be accessible? [...] So that **divide**... I could envision in this context becoming even worse.”

Highlighted Findings | Thematic Map



Theme 4 & Theme 5 | Tools



discussion on **capabilities** vs. **reality** of AI-powered technologies

Design Implications | Feedback Tools

Customization and Adaptability

DESIGN INSIGHT #1
NEAR-TERM

Design automatic feedback tools that allow instructors to tailor and moderate the criteria of AI-generated feedback.

DESIGN INSIGHT #2
ASPIRATIONAL

Provide automatic feedback customized to a learner's background, accounting for their proficiency level, educational context, and regional sign language variation.

Multimodal and Scaffolded

DESIGN INSIGHT #3
NEAR-TERM

Ensure feedback is time-stamped and presented in both textual and visual formats. For novice learners, begin with feedback in a written language, gradually incorporating feedback in sign language as their proficiency increases.

Generating Accurate Signing

DESIGN INSIGHT #4
ASPIRATIONAL

Create technology capable of generating accurate signing demonstrations in response to learner-uploaded videos containing signing errors to help students identify and correct performance issues.

Design Implications | Conversational Partner

Engaging and Diverse

DESIGN INSIGHT #5
NEAR-TERM

Design AI-powered virtual conversational partners with warm and friendly personas to make out-of-class practice interactions more engaging, welcoming, and dynamic.

DESIGN INSIGHT #6
ASPIRATIONAL

Virtual-generated characters should reflect the diversity of the Deaf community in terms of regional sign variations and cultural expressiveness, exposing learners to the rich diversity of signing and Deaf culture.

Customizing Signing and Conversations

DESIGN INSIGHT #7
NEAR-TERM

Allow students to customize the signing attributes, e.g., signing speed, and appearance of virtual characters based on their preferences.

DESIGN INSIGHT #8
NEAR-TERM

Develop interactive conversational practice tools that allow users to modify conversational lengths to suit their availability and attention span.

Dialogue, Storytelling, and Diverse Communication Scenarios

DESIGN INSIGHT #9
NEAR-TERM

Virtual characters on conversational practice platforms should support good practices of natural communication, such as active “listening”, appropriate turn-taking, and interruption patterns.

DESIGN INSIGHT #10
ASPIRATIONAL

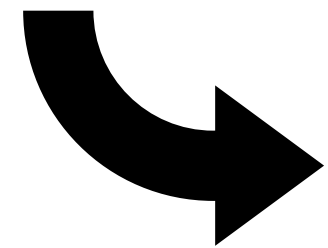
Incorporate immersive storytelling elements in conversational practice platforms to improve receptive and expressive skills and assess them through references to story details during interactions.

DESIGN INSIGHT #11
ASPIRATIONAL

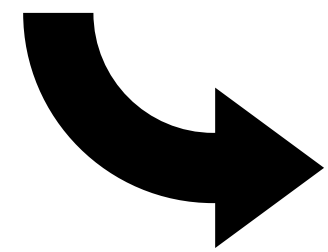
Simulate diverse communication scenarios to help advanced students (e.g., ASL-English interpreting students) practice signing in specialized contexts, e.g., legal, medical.

Discussion

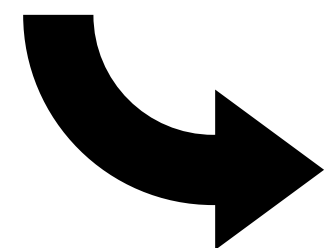
Insights



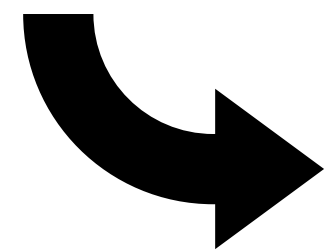
Willing to **pragmatically adopt AI** but remain **cautious** about academic integrity and AI's limitations (Tasdemir et al., 2023); **prior negative experiences with underdeveloped ASL technologies**



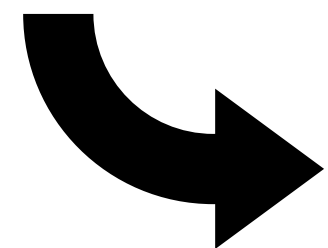
Reduce workload through automated feedback for **labor-intensive video assignments**. Address some of the “**cultural taxation**” disproportionately experienced by Deaf educators (Pirone et al., 2023)



AI tools must be adaptable to diverse, **less standardized ASL teaching practices** (Rosen, 2019) and viewed not as neutral artifacts but as **accountable actors in the classroom**



AI risks **homogenizing linguistic diversity** by privileging overrepresented regional variations, potentially erasing variation and **diminishing cultural, rhetorical, and epistemological richness** (Bochner, 2011).



Feedback systems should **scaffold** learning toward **more complex signing**, while conversational partners enable **dialogue practice** that builds fluent, contextually grounded communication.

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Saad Hassan



saadhassan@tulane.edu, saadh.info



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