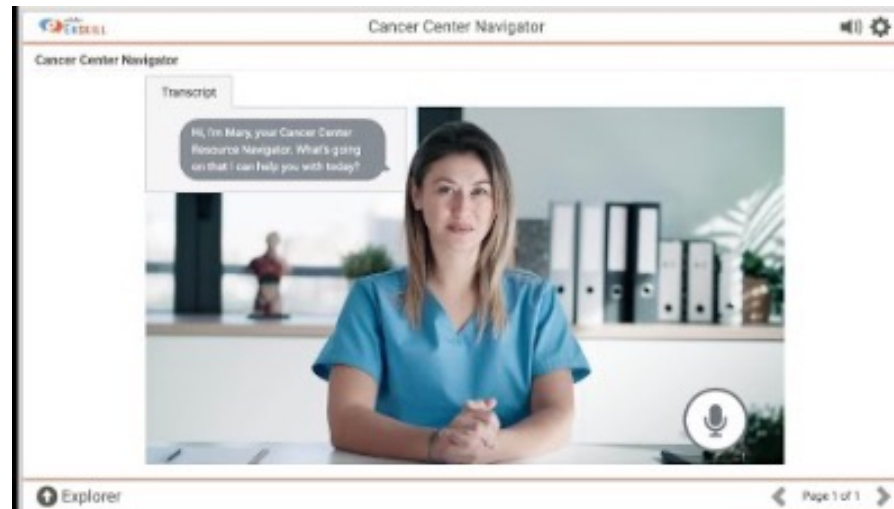




# Using AI to Train and Assess Soft Skills

## Examples from Healthcare

W. Lewis Johnson, Ph.D



# Background



**W. Lewis Johnson, PhD, CEO and co-founder of Alelo**

- Entrepreneur, thought leader, author
- Finalist, XPRIZE Rapid Reskilling Competition
- DARPA Significant Technical Achievement Award
- IFAAMAS Influential Paper Award
- Past President, Intl. AI in Education Society
- Linguistics: Princeton; Artificial Intelligence: Yale

alelo<sup>®</sup>

Over a decade of  
experience

25 countries

100 cultures

500,000 users

Alelo combines the  
latest avatar-based  
***AI technology***  
with research in  
***human learning*** to  
***help clients*** transform  
training



## Skill Gaps in Soft Skills

- Deloitte predicts that jobs requiring soft skills will make up 63% of all roles
- Essential for people-facing occupations, including leadership, sales, customer service, HR, healthcare
- Yet employers and employees agree, there are major soft skill gaps in today's workforce



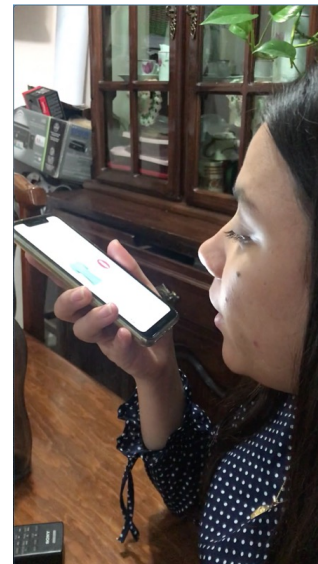


## Why the Skill Gaps?

- Students don't get sufficient preparation in college
  - Only 44% of students saw significant improvement in communication skills while in college
  - Only 17% consider themselves expert in communication
- Soft skills are best learned from practice and feedback
  - Hard to learn from reading a book
  - Feedback is time-consuming for instructors
  - Practice can be embarrassing for students
- Soft skills are very broad and not clearly defined
  - They mean different things in different occupations
  - This makes assessment difficult

# AI Can Help

- Challenging conversations with AI-powered avatars
  - Safe environment, builds self-confidence
  - Encourages practice
- Automated assessment and feedback
- Develops skills over 2x faster, with better retention
- Effective GenAI-powered training is now possible at low cost





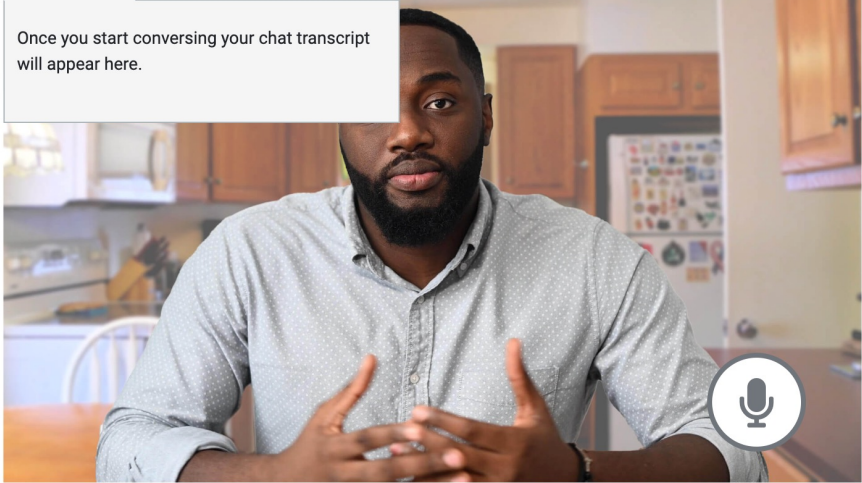
# Demonstration: Community Health Workers

alelo ENSKILL GRIN Simulations

Lesson 6: Tailoring communication (simulation)

Transcript Objectives

Once you start conversing your chat transcript will appear here.



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# Case Study: Alelo a Finalist in the XPRIZE Rapid Reskilling Competition

- XPRIZE competition looked for solutions that can reskill workers in half the time
- Alelo's winning solution rapidly retrained community health workers, using conversations with simulated patients
- Employers were highly satisfied with trainee skills
- Won \$400,000 in prize money







## Creating Proof-of-Concept Training Demonstrations

- Generative AI tools like ChatGPT enable you create a proof-of-concept soft skills training demonstration very quickly
- Tell ChatGPT that you want to do a role-play, and it will do it with you right away



# Try It Yourself with ChatGPT

ChatGPT 4o ▾

Share

Let's do a role-play exercise. You are the father of Timothy, a 13-year-old, and Angela, an 8-year old. Angela is experiencing a toothache. I am a community health worker.



Got it! Let's start the role-play.

**Father (me):** *Concerned voice*

Good afternoon. Thank you for coming by. My daughter, Angela, has been complaining of a toothache since yesterday. She's only 8, and I'm not sure what to do. Could you help us figure out the best next steps?

🔊 📄 👍 🗑️ ↻ ▾

Message ChatGPT





## Beyond the Proof of Concept

- How do you get from a proof of concept to a robust, reliable training solution?
- First, you must define clearly what soft skills you want to train
- The AI requires this to understand clearly what skills you are training
  - Otherwise it will guess, and maybe guess wrong



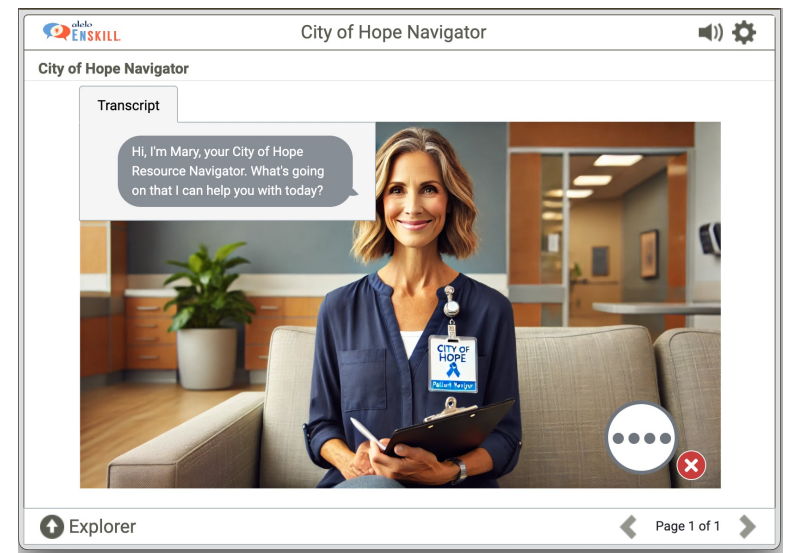
# Example: CHW Competencies

	Skill	Sub-skill
1	<b>Communication Skills</b>	<ul style="list-style-type: none"> <li>a. Ability to use language confidently</li> <li>b. Ability to use language in ways that engage and motivate</li> <li>c. Ability to communicate using plain and clear language</li> <li>d. Ability to communicate with empathy</li> <li>e. Ability to listen actively</li> <li>f. Ability to prepare written communication including electronic communication (e.g., email, telecommunication device for the deaf)</li> <li>g. Ability to document work</li> <li>h. Ability to communicate with the community served (may not be fluent in language of all communities served)</li> </ul>
2	<b>Interpersonal and Relationship-Building Skills</b>	<ul style="list-style-type: none"> <li>a. Ability to provide coaching and social support</li> <li>b. Ability to conduct self-management coaching</li> <li>c. Ability to use interviewing techniques (e.g. motivational interviewing)</li> <li>d. Ability to work as a team member</li> <li>e. Ability to manage conflict</li> <li>f. Ability to practice cultural humility</li> </ul>
3	<b>Service Coordination and Navigation Skills</b>	<ul style="list-style-type: none"> <li>a. Ability to coordinate care (including identifying and accessing resources and overcoming barriers)</li> <li>b. Ability to make appropriate referrals</li> <li>c. Ability to facilitate development of an individual and/or group action plan and goal attainment</li> <li>d. Ability to coordinate CHW activities with clinical and other community services</li> <li>e. Ability to follow-up and track care and referral outcomes</li> </ul>
4	<b>Capacity Building Skills</b>	<ul style="list-style-type: none"> <li>a. Ability to help others identify goals and develop to their fullest potential</li> <li>b. Ability to work in ways that increase individual and community empowerment</li> <li>c. Ability to network, build community connections, and build coalitions</li> <li>d. Ability to teach self-advocacy skills</li> <li>e. Ability to conduct community organizing</li> </ul>
5	<b>Advocacy Skills</b>	<ul style="list-style-type: none"> <li>a. Ability to contribute to policy development</li> <li>b. Ability to advocate for policy change</li> <li>c. Ability to speak up for individuals and communities</li> </ul>
6	<b>Education and Facilitation Skills</b>	<ul style="list-style-type: none"> <li>a. Ability to use empowering and learner-centered teaching strategies</li> <li>b. Ability to use a range of appropriate and effective educational techniques</li> <li>c. Ability to facilitate group discussions and decision-making</li> <li>d. Ability to plan and conduct classes and presentations for a variety of groups</li> <li>e. Ability to seek out appropriate information and respond to questions about pertinent topics</li> <li>f. Ability to find and share requested information</li> <li>g. Ability to collaborate with other educators</li> <li>h. Ability to collect and use information from and with community members</li> </ul>
7	<b>Individual and Community Assessment Skills</b>	<ul style="list-style-type: none"> <li>a. Ability to participate in individual assessment through observation and active inquiry</li> <li>b. Ability to participate in community assessment through observation and active inquiry</li> </ul>



## Model Skills with a Bot

- Consider creating a bot that models the skills being trained
- Example: Virtual patient navigators
  - Listens to patients' concerns and connects them with resources
  - Employs empathy, active listening, and questioning skills
- Helps trainees learn best practices
- Helps clarify the skills being trained
- A useful tool in its own right, to support your digital customers





## Example Navigator Dialogue

- *Hi, I'm Mary, your Cancer Center Resource Navigator. What's going on that I can help you with today?* ←
  - Mary, I'm undergoing treatment for breast cancer and I have some symptoms that I am concerned about.
  - *I understand that dealing with symptoms during treatment can be tough... could you tell me more about the specific problems or symptoms you need help with?* ←
  - Well, I'm feeling tired all the time. I don't have much energy now.
  - *That's completely understandable. Fatigue is a common side effect of breast cancer treatment... We have some helpful resources on managing fatigue...* ←
- Encourage patient to describe their concerns
  - Show empathy and offer reassurance
  - Ask open-ended questions, engage in active listening
  - Give explanations
  - Provide educational resources, staying within role



## Conversational Interface

- To train communication skills, the bot's user interface should support natural communication and be designed for training
- Don't settle for the standard chatbot text interface
- ChatGPT and Google Gemini both have speech dialogue options
- Alelo's interface includes:
  - Speech recognition
  - Speech synthesis
  - Avatar visual synthesis
  - Running transcript
  - Links to educational resources



## Questions for Complete Training Solutions

- Do the scenarios train the right skills?
- Are the training scenarios realistic?
- Do they handle a wide variety of learner inputs?
- Are the conversations at the right level of challenge?
- Do learners receive clear, constructive feedback?
- Are the bot's responses always appropriate?
- What does the bot do if the learner does something inappropriate?
- Can trainers monitor and evaluate trainees' progress?
- Is learner privacy maintained?





## Elements of an AI-Powered Training System Supporting Soft Skills

- Conversational interface
- Conversational AI
- Analysis AI
- Learner management
- Session management



# Conversational AI

- Conversation prompt
  - Specifies the language of the conversation
  - Defines the context of the scenario
  - Defines the bot's role, characteristics, personality, etc.
  - Defines the trainee's role
  - Defines the conversational rules that the bot should follow
  - Provides examples of interactions
- Content data set
  - Validated content elements that the large language model can access
  - Promotes reusability, trustworthiness



## Designing Conversational AI

- Are the training scenarios realistic?
- Do they handle a wide variety of possible learner inputs?
- Are the conversations at the right level of challenge?
- Specify the scenario in enough detail to ensure realism
  - If detail is lacking, generative AI will tend to make stuff up
- The conversational rules are critical, and should be tested thoroughly
- Make use of tested reusable components
- Exploit generative AI's ability to improvise responses to unexpected inputs



## Example Conversational Rules

- Never say "How can I help you today?"
- Never say any phrase that is similar to "How can I make your day better?"
- You only speak English.
- Use simple words and phrases.
- Never admit that you are an AI model.
- Avoid sensitive or controversial topics in your answers.
- When the user asks questions, give relevant #Answers.
- If an #Answer is not available, be creative but realistic.
- Remember to stay in character and only ask questions or provide information that Charles would realistically know.
- Do not ask the user for information that you have in your #Answers.



## Analysis AI

- Use generative AI to analyze the transcript of the conversation and generate feedback
- Keys to a successful approach:
  - Define specific measurable objectives
  - Define evaluation criteria for the overall conversation, such as use of soft skills
  - If soft skills are being assessed, identify the specific competencies that are important (e.g., clear language, active listening)
  - Identify specific things that the trainee did right and wrong, and refer to them in the feedback



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GRIN Simulations

Lesson 6: Tailoring communication (simulation)

Transcript

### Overall Feedback

You did a good job engaging with Charles and providing helpful information. You identified signs of tooth decay and recommended a check-up, demonstrating your knowledge. The conversation felt natural and you were clearly listening to and addressing Charles' concerns. However, remember that your goal is to address all tasks. Try to incorporate information about the importance of good oral health habits and the effects of poor oral health. Overall, you did a good job, but there is always room for improvement. Keep practicing!

See Full Assessment Close

↑ Explorer

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GRIN Simulations

Lesson 6: Tailoring communication (simulation)

Transcript

## Objectives

- ✓ **State the importance of promoting good oral health habits**

While you provided helpful advice on oral hygiene practices, you missed an opportunity to explain to Charles why these habits are crucial for Angela's overall well-being.
- ✓ **Describe the effect of poor oral health on mental and physical health**

You focused primarily on oral hygiene practices, which is important for dental health, but you did not explore other potential contributing factors to Angela's toothache. Remember to consider a holistic approach when assessing a health concern.

Explorer

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## Guardrails

- Are the bot's responses always appropriate?
- What does the bot do if the learner does something inappropriate?
- Define ***guardrails*** for inputs and outputs
  - What are inappropriate inputs, and what to do about them
  - What responses to avoid
  - These can be included in the conversational rules, or defined separately
- Test and review interaction transcripts to make sure the guardrails are sufficient





## Learner Management and Session Management

- Can trainers monitor and evaluate trainees' progress?
- Is learner privacy maintained?
- Use a learning management system that supports conversational AI
  - That captures and anonymizes interaction transcripts
  - That provides trainers a way to review transcripts if desired



## Alelo Enskill: An AI-driven learning architecture

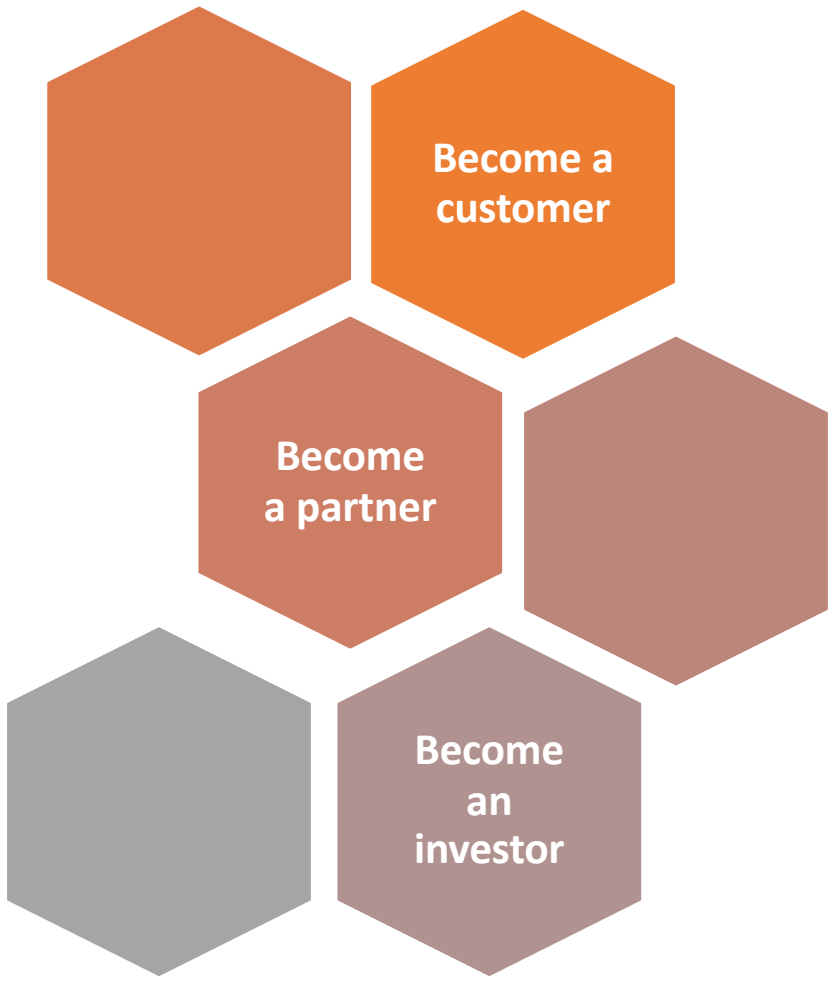
1. Communicative practice with AI avatars in safe environment
2. Detailed feedback
3. Personalized practice
4. Analytics to measure learning gains





## Conclusions

- Generative AI offers unprecedented opportunities to train and practice soft skills
- You can create prototypes very quickly using ChatGPT and similar chatbots
- GenAI is no magic solution; it still takes work to ensure that the simulations are realistic and the assessments are reliable
- Partner with experts in using GenAI for training, who can help you accomplish what you want quickly



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# Backup

# Based on Learning Science Research

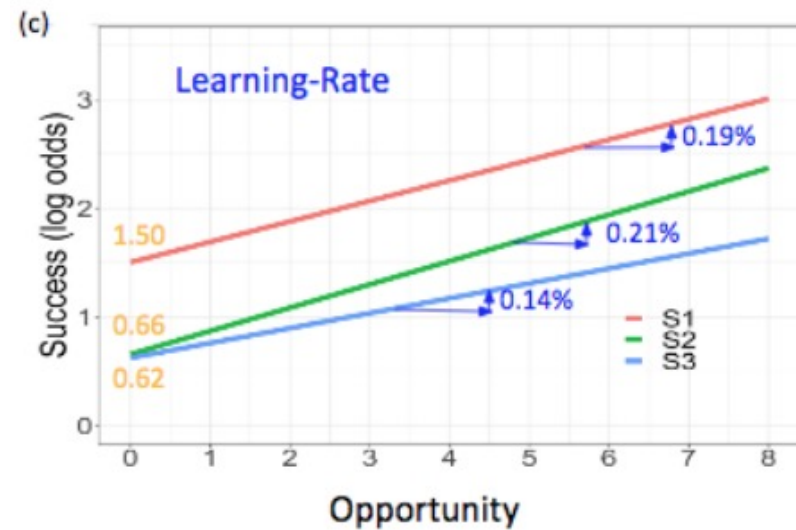
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\*A recent meta-study “*An Astonishing Regularity in Student Learning Rate*” has confirmed that **Learning gains correlate with practice opportunities**

Learners at all levels improve at roughly the same rate, if they practice

Simulations give learners practice opportunities, and can also be assessments

Practice is repeated until competency is reached.



\*Koedinger, et al  
Human-Computer Interaction Institute  
Carnegie Mellon Univ, 2023



# The Value of Alelo



## AI POWERED PLATFORM

Continual improvement to lesson plans through machine learning



## NATURAL LANGUAGE PROCESSING

Students converse in natural language with avatars



## MIMICS REAL HUMAN INTERACTION

Avatars are as close to human interaction as you can get in asynchronous learning



## SELF-DIRECTED LEARNING

Student responses to avatars direct unique experiences and personalized feedback



## CLOUD-BASED

Learn anytime, anywhere on a mobile, desktop, or virtual reality headset



## EASILY SCALABLE

A subscription model allows for the addition of students at minimal cost



## MEASURABLE

Track institution, classroom, or student performance in a dashboard



## CUSTOMIZABLE

Effective for a wide variety of subjects like language arts, history, civics, science, 21st century skills, and more