



# WEB 3.0 EdTech Tools and EDI: Affordances and Challenges in Language Learning Programs

---

CALL for Equity, Diversity, and Inclusion

May 27, 2022

Ryan Morrison and Erna Kucanin

Geroge Brown College, CPLS



# PRESENTERS



Ryan Morrison (he/him)  
Professor  
School of ESL and  
Department of English and  
Communication  
George Brown College



Erna Kucanin (she/her)  
Professor  
School of ESL  
George Brown College

# AGENDA

- Presentation Objectives
- Web3 and Ed3
- Virtual Reality Learning Environments
- Large Language Models
- Discussion
- Resources

# PRESENTATION OBJECTIVES



Provide information and examples of emerging tech tools that are poised to disrupt/ improve elements of language arts teaching



Spur discussion of the potential and the challenges of these tools for addressing issues of equality, diversity, and inclusion



Leave the audience with essential considerations for selecting and integrating these new tools in language and literacy classrooms



Set background

Clear frame

What are your thoughts on the future of eLearning and Language Learning -- consider the perspective of students, teachers and administration. Make a post, and position it on the scale of sk

Students:  
Yellow

Admin:  
Pink

Optimistic



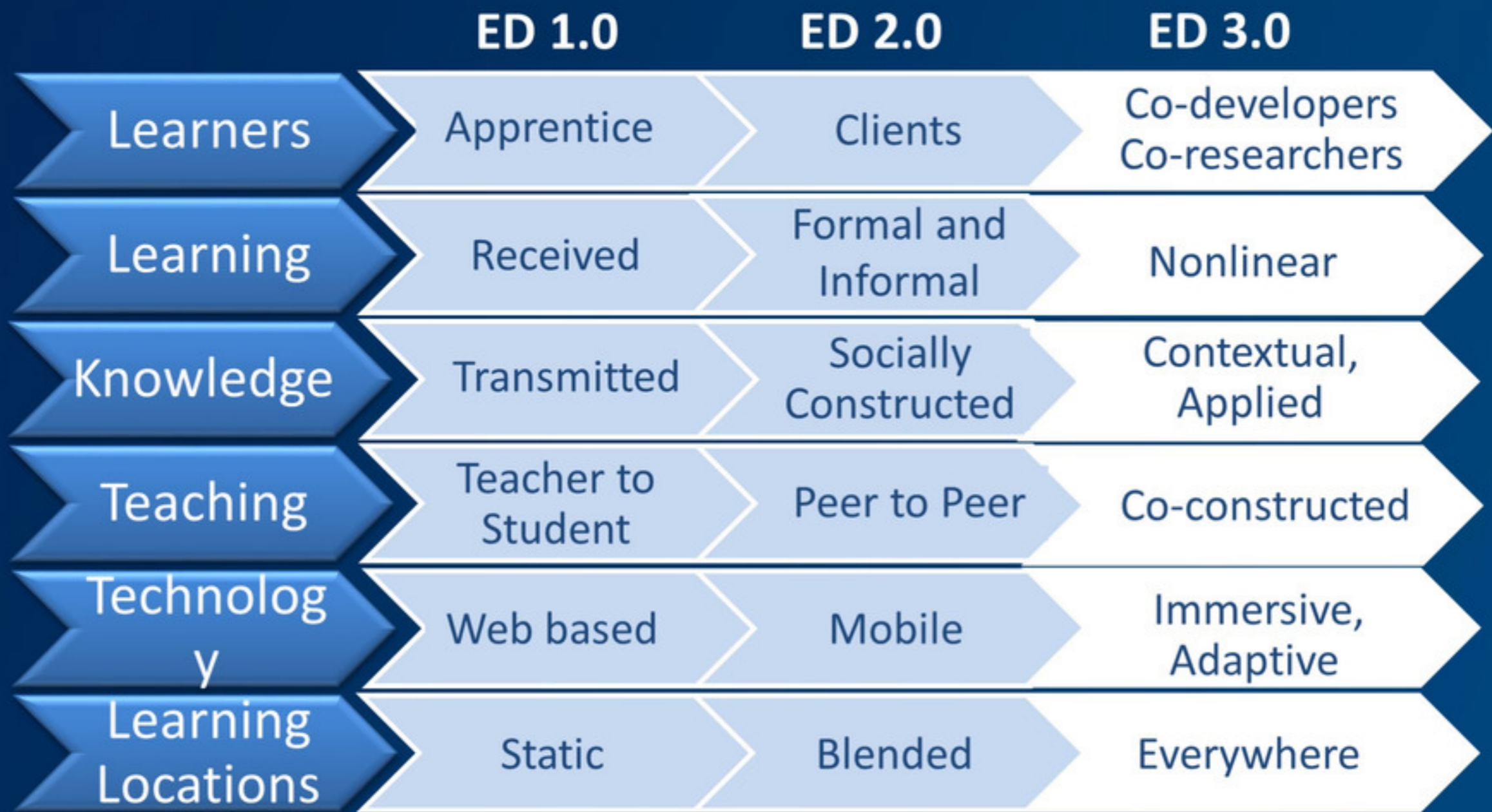
[https://jamboard.google.com/d/13\\_rOUfi3BO4cja9caxt\\_h75vj07LUn9i5t2uHWK4U3o/edit?usp=sharing](https://jamboard.google.com/d/13_rOUfi3BO4cja9caxt_h75vj07LUn9i5t2uHWK4U3o/edit?usp=sharing)

# EVOLUTION OF THE WEB



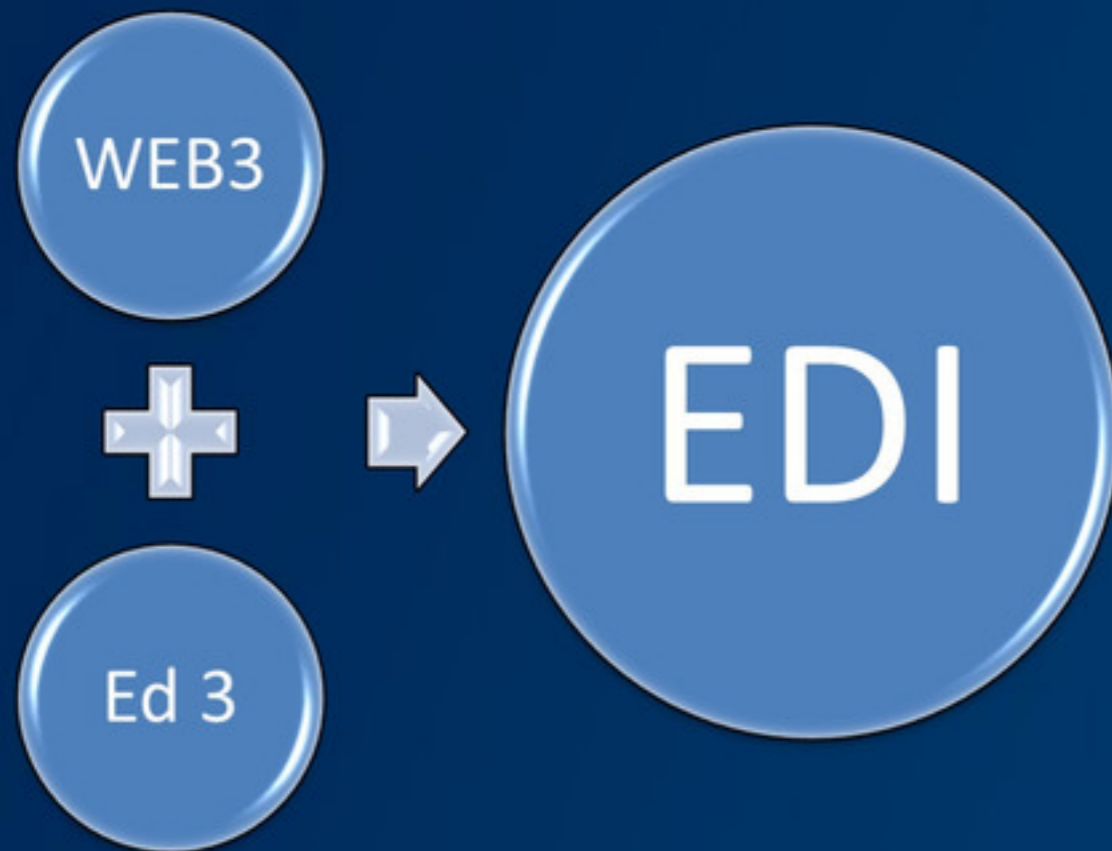
(Khoshafian, 2021)

# WEB 3.0 and the Future of Education



(Adapted from Schmidt and Keats, 2007)

# WEB 3, Ed3, and EDI



- Applying Anti-Racist (AR) and Anti – oppression practices (AOP)
- Honouring lived experiences and social identities
- Decolonizing education
- Recognizing learner variability
- Stimulating social inclusion by welcoming diversity
- Facilitating non-threatening learning conditions
- UDL
- Accessibility



# Open Ended Question

**Considering EDI, Web 3.0, and Ed 3.0, what challenges do you anticipate in language education in the near future?**

# Virtual Reality Learning Environments (VRLEs)

- Interactive computer-based applications that provide a synthetic digital environment
- Simulate environments, objects, actions, and processes
- Use of Head Mounted Displays (HMDs) and avatars
- Create an illusion that the user is immersed in an environment
- Applications/simulations range from games to training and education



Definition from Encyclopedia of the Sciences of Learning (2012)



<https://spatial.io/s/EKs-Lo-Fi-Meetup-628465a4a83b5000011d1e47?share=7303658339097498347>

## VRLEs and Learning Affordances

- First (person) order experiences
- Enhance spatial knowledge
- Encourage experiential learning
- Increase motivation and engagement
- Foster creativity and user-generated content

## VRLEs and EDI

- Reduce barriers and create opportunities for marginalized groups and underserved communities
- sense of embodiment
- Address geographical distance
- Assistive technologies for people with disabilities; physical environments more accessible

(Dick, 2021)

**Turing Test - Which one of these texts was generated by a computer and which one was generated by a human?**

**Prompt:** I want to discuss the possibility that we can integrate equity, diversity and inclusion into more curriculum for English language classes.

Which one of these texts was generated by a computer and which one was generated by an algorithm (GPT-3)?

**Text 1:** First of all, who should do it? Equity can be about more than pay or teacher status. It is also about an equitable curriculum, for example, in our schools. The importance of an equitable curriculum cannot be overemphasized. For example, even though it is my impression that some of the schools may be better than others, there is a need to include inclusive and accessible literature. There is a danger of having some classes be privileged to not do work. The idea of equity in the classroom also means more work is required by students. This should not be seen as a burden. It is an expectation, and one that students need to be given.

OR

**Text 2:** Considering the current discussions being had at almost every level of society, we should be exploring options for material and content that address inequality. Further, many of our students come from marginalized backgrounds, while others come from places where gender/ sexuality and issues regarding race are treated as taboo discussions. Not only will learning a language in the context of these socially pertinent topics benefit students' understandings of these topics, it will also help them navigate discussions that they may be having outside of the language classroom that are occurring.

# Quiz

Turing Test - Which one of these texts was generated by a computer and which one was generated by a human?



Text 1: First of all, who should do it? Equity can be about more than pay or teacher status. It is also about an equitable curriculum, for example, in our schools. The importance of an equitable curriculum cannot be overemphasized. For example, even though it is my impression that some of the schools may be better than others, there is a need to include inclusive and accessible literature. There is a danger of having some classes be privileged to not do work. The idea of equity in the classroom also means more work is required by students. This should not be seen as a burden. It is an expectation and one that students need to be given.

- computer-generated
- human-generated

Text 2: Considering the current discussions being had at almost every level of society, we should be exploring options for material and content that address inequality. Further, many of our students come from marginalized backgrounds, while others come from places where gender/ sexuality and issues regarding race are treated as taboo discussions. Not only will learning a language in the context of these socially pertinent topics benefit students' understandings of these topics, it will also help them navigate discussions that they may be having outside of the language classroom that are occurring.

- computer-generated
- human-generated

## Large Language Model (LLM): Overview



- GPT-3 is the most popular and available API that anyone can integrate into digital platforms (OpenAI, 2020)
- Big tech companies are now using their own in-house LLM for translation, search, suggestion, chat bots, etc. (Wiggers, 2021; Zhang, et al., 2022)
- Like all tools, there are both challenges (academic integrity and skill diminishment) and affordances for educators (better tools, automation of content and skill development).

*What affordances do they currently provide for students?*

Automatically  
generated  
captions

Better  
translation  
suggestions

Better bots for  
conversation and  
pronunciation practice  
(Conversational  
Collective, n.d.)

Create prompts and  
questions to overcome  
writer's block

## *How can LLMs be used to improve EDI in language education in the future?*

Problem: Many students get stuck, distracted due to external factors affecting their cognition (Verschelden, 2017)

Opportunity: LLM platforms can provide prompts and automated conversational support for students who may be reticent for writing or speaking content – multiple means of engagement.

Problem: Teachers have biases for different 'Englishes', and thus struggle to create more inclusive content

Opportunity: Teachers can generate inclusive content based on existing materials.

# Challenges of VRLEs and LLMs for EDI and Language Education

## VRLEs

- Technical and usability issues for both educators and students
- Accessibility barriers
- Instructional design challenges
- Equity and privacy concerns

## LLMs

- Academic integrity
- Digital efficacy of teachers and students
- Environmental impact of compute costs
- Inherent bias of source text

## Discussion

How can we use these tools (VLRE and LLM) to improve EDI in language classrooms?

^ Instructions



# Collaborate Board

## Discussion



We use our own cookies and those of third parties to allow for a variety of features, analyze our services and show you according to your preferences and browsing habits. You can

<https://view.genial.ly/6241cf5c0d6d460014d89a1f/interactive-content-call-2022-web-30-edtech-tools-and-dei>

Accept All Cookies

[Settings to configure or reject cookies](#)

Want to make creations as awesome as this one?



# References

Artificial Intelligence: The Turing Test. (1999). Retrieved from <http://www2.psych.utoronto.ca/users/reingold/courses/ai/turing.html>

BBC. (n.d.). *XR barriers research - accessibility for products* - BBC. BBC News. Retrieved May 17, 2022, from <https://www.bbc.co.uk/accessibility/forproducts/xr/>

Conversational Collective. (n.d.) Conversation Constuction Guide. <https://convocollective.org/guide/>

Keats, & Schmidt, J. P. (2007). The genesis and emergence of Education 3.0 in higher education and its potential for Africa. *First Monday*. <https://doi.org/10.5210/fm.v12i3.1625>

Khoshafian, S. (2021, March 21). Can the Real Web 3.0 Please Stand Up? RT Insights. [Can the Real Web 3.0 Please Stand Up? - RTInsights](#)

OpenAI. (2020). OpenAI Licenses GPT-3 Technology to Microsoft. *OpenAI Blog*. Retrieved November 15, 2020 from <https://openai.com/blog/openai-licenses-gpt-3-technology-to-microsoft/>

Radianti, J., Majchrzak, T., Fromm, J., & Wohlgenannt, I. (2020). A systematic review of immersive virtual reality applications for higher education: Design elements, lessons learned, and research agenda. *Computers and Education*, 147, 103778–. <https://doi.org/10.1016/j.compedu.2019.103778>

Southgate, E. (2020). *Virtual reality in curriculum and pedagogy: Evidence from Secondary Classrooms*. Routledge

Verschelden, C. (2017) *Bandwidth recovery*. Associations of American Colleges and Universities.

Wiggers, K. (2021, October 11). Microsoft and Nvidia team up to train one of the world's largest language models. *VentureBeat*. Retrieved May 6, 2022, from <https://venturebeat.com/2021/10/11/microsoft-and-nvidia-team-up-to-train-one-of-the-worlds-largest-language-models/>

Zhang, S., Diab, M., & Zettlemoyer, L. (2022, May 5). Democratizing Access to large-scale language models with OPT-175B. Meta AI. Retrieved May 7, 2022, from <https://ai.facebook.com/blog/democratizing-access-to-large-scale-language-models-with-opt-175b/>

THANK YOU!