“Digital Learning Environment Tools for Advancing Inclusion and Academic Freedom”

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Agenda / Structure

1 Introduction

- Challenges in digital education,
- Formats and technologies

2 AI Tools for Inclusive Learning

- Automatic translation, subtitles etc.
- Personalized learning assistants

3 Interactive Media Elements

- Types,
- Examples
- Applications

4 Learning Platforms and Integration

- LMS + AI-based tools,
- VEED, Vidnoz tools review
- Spaces: EngageVR, Spatial, Use cases

5 From Concept to Practice

- Areas of application
- Expected results
- Examples

Why I'm Focusing on Digital Distributed Learning Platforms

My Focus Today:

Practical solutions for real problems:

How to build and expand digital platforms for distributed online learning

Why It Matters:

- Access to education anytime, anywhere
- Works despite crisis, location, or limited resources
- **Supports inclusive, flexible, scalable learning models**

These platforms help turn inclusion from a concept into a working system.

Practical Tools for Advancing Inclusion

What We Really Need

— Clear technological workflows for lecturers

— Use of interactive media + AI tools

— Less effort, more impact

— Easier content creation for everyone

My Goal

Create step-by-step guides (workflows explainers) so any lecturer can build their own interactive learning content

Next Steps

— Integrate content into Moodle, Microsoft Teams, and other platforms

— In the future: develop fully immersive VR learning systems

Three Types of Interactive Media Tools for Advancing Inclusion and Academic Freedom

1. Individual interactive media tools

— real-time translation of lectures into subtitles;

— audio versions of lecture texts for students with vision problems;

— interactive audio or video quests based on existing lectures.

2. Digital learning platforms

These are tools already used by Ukrainian universities — like Moodle, MS Teams, and Google Classroom — that help organize fully remote learning.

3. Immersive virtual environments

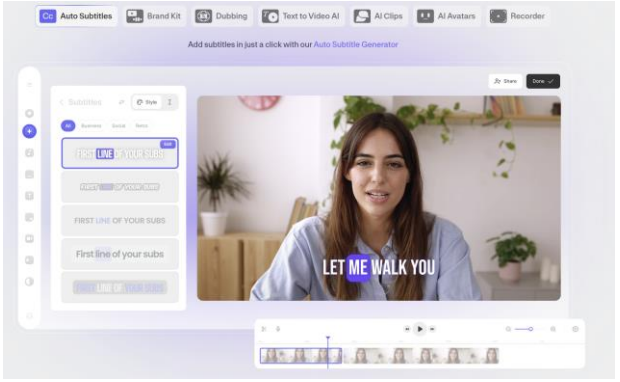
These are more advanced systems that include virtual worlds, 3D spaces, and VR tools. They allow students not just to attend class remotely, but to feel fully immersed in the learning experience — which greatly improves motivation and engagement.

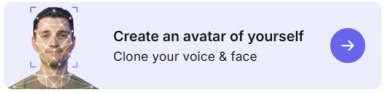
AI-Powered Educational Tools for Inclusive Learning

Educational Need or Challenge	Relevant Technology (including AI)	Current Tool or Service
Real-time lecture translation for international students or students with hearing impairments	Real-time speech translation using NLP and AI (Speech-to-Text + Machine Translation)	Google Meet, Microsoft Teams (Live Captions), Zoom
Automatic subtitle generation for video materials	Automatic Speech Recognition (ASR) using neural networks	YouTube Automatic Subtitles, Otter.ai, Happy Scribe
Audio narration of lecture texts for students with visual impairments or dyslexia	Text-to-Speech (TTS) using deep learning	Amazon Polly, Google Text-to-Speech, Vidnoz AI, VEED IO, NaturalReader
Creating interactive audio or video quests to engage and motivate students	Interactive scenarios and adaptive dialogues powered by Generative AI	H5P, Articulate Storyline, Adobe Captivate
Support for students with ADHD through interactive and gamified tasks	Gamification with AI elements, adaptive learning tools	Kahoot!, Miro, Quizlet, Classcraft
Personalized learning experiences adapted to each student's pace and style	Adaptive learning platforms using Machine Learning and Recommendation Engines	Smart Sparrow, DreamBox Learning, Coursera (adaptive mode)
Learning access for students with physical disabilities through virtual tours and presentations	Interactive 3D tours and VR/AR presentations generated with AI	Engage VR, Matterport, Spatial.io, Google Expeditions (Google VR)
Accessible materials for students with color vision deficiency or visual processing issues	AI-powered content adaptation (e.g., high-contrast color generation, enhanced readability)	Adobe Color Accessibility Tools, Helperbird
Better understanding of complex material through visual mapping	AI-generated diagrams and mind maps using lecture text analysis (NLP)	Miro (AI Mind Mapping), MindMeister, Lucidchart (AI-assisted)
Support for students with speech or writing difficulties through automatic corrections	NLP algorithms for grammar and style checking (AI Writing Assistance)	Grammarly, QuillBot, LanguageTool
Sign language interpretation using a virtual avatar for students with hearing impairments	Neural network–based animated virtual sign language avatars	SignAll, SignAvatar, Hand Talk, Microsoft Sign Language Avatar
Real-time AI assistants (chatbots, voice assistants) to support students during learning	Interactive chatbots and voice assistants with NLP and speech recognition	ChatGPT (OpenAI), Google Assistant, IBM Watson Assistant, Amazon Alexa Education Skills

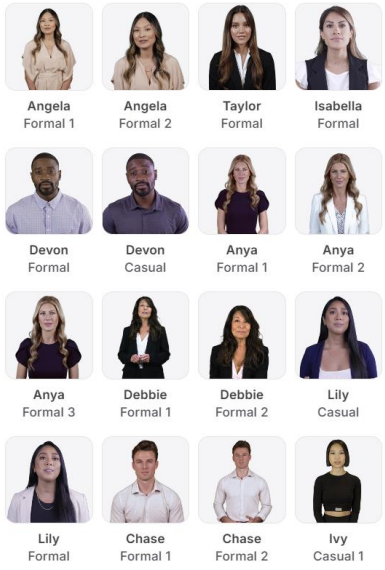
AI-Powered Educational Tools for Inclusive Learning

VEED IO Interface





All Avatars

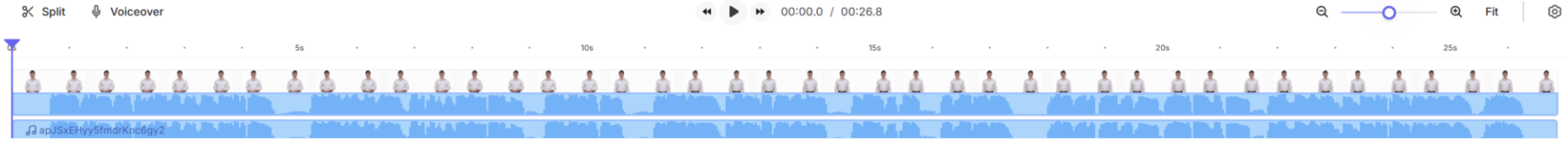


Magic Tools

- **Clean Audio** — Remove background noise
- **Magic Cut** — Remove ums, ahs and bad takes — BETA
- **Translate voice** — Add voice translations in multi-languages
- **Remove Silences** — Cut out dead air & awkward pauses

Start 00:00.0 | End 00:26.8

Replace Audio



Tools Integration into Learning Platforms

What's Next?

After identifying key interactive tools, the next step is putting them into real use.

Let's integrate them into the platforms educators already know:

Moodle, MS Teams, Miro, Notion

The Good News

- Many tools already have built-in integrations
- Others can be added via links, iframes, or plugins
- Modern platforms are built to be open and flexible

Tools Integration into Learning Platforms

Tool or Task	Compatible Platforms	How to Integrate
Automatic video subtitles (YouTube Subtitles, Otter.ai, Happy Scribe)	Moodle, MS Teams	Upload videos with subtitles or embed YouTube videos in Moodle; use Teams' built-in captions during sessions
Text-to-speech for lectures (Amazon Polly, Google TTS)	Moodle, Notion	Insert pre-recorded audio files into Moodle lectures or add audio links in Notion pages
Interactive quests and tests (H5P, Articulate Storyline)	Moodle, MS Teams	H5P integrates natively with Moodle; Articulate content can be embedded via SCORM or shared links in MS Teams
Real-time speech-to-text translation (Google Meet, MS Teams)	MS Teams	Teams offers Live Captions; Google Meet supports real-time captions too
Gamification in learning (Kahoot!, Quizlet)	Moodle, MS Teams, Notion	Share game links as lesson activities in Moodle, Teams tabs, or embedded in Notion
Mind Mapping (Miro, MindMeister)	Miro, Notion, Moodle	Use plugins in Teams and Notion or embed links and code into Moodle
Virtual 3D tours (Engage VR, Matterport, Spatial.io)	Moodle, MS Teams, Notion	Embed iframe codes or direct links to tours within Moodle or Notion course pages
Virtual sign language interpretation (Hand Talk)	Moodle, MS Teams	Embed pre-recorded sign language videos in Moodle or stream them during MS Teams sessions
Real-time AI assistants (ChatGPT, IBM Watson Assistant)	Moodle, MS Teams, Notion	Integrate chatbots as standalone modules (e.g., ChatGPT API) into Moodle or MS Teams bots
Automatic text checking (Grammarly, LanguageTool)	Notion, Moodle	Grammarly integrates with Notion; LanguageTool can be added as browser extension or Moodle plugin

How to Implement Integration

Moodle

— Supports ready-to-use modules like H5P and SCORM

— Other tools: add with links or iframes

Microsoft Teams

— Has an open app system

— Easily integrates tools like Miro, Kahoot!, and more

Notion

— Allows direct embedding via link or iframe

— Great for visual and interactive content

Miro

— Shareable boards and iframe embeds

— Easily used inside LMS platforms

AI-Powered Features in Online Conferencing Tools

Function	Description	Examples of Services
Real-time subtitles	AI-powered speech recognition that provides subtitles during lectures and discussions	Zoom, MS Teams, Google Meet
Meeting transcription and smart notes	Automated summaries, event timelines, and lecture highlights	Otter.ai (integrated with Zoom), Fireflies.ai, Fathom
Real-time speech translation	Automatic translation of the speaker's voice into another language in real time	Zoom (Beta Live Translation), Interprefy, Wordly
Individual language settings	Custom interface and subtitle language settings per participant	Google Meet, Webex
AI voice assistants in meetings	AI-powered assistants that help with asking questions, capturing key points, and interacting with content	Zoom AI Companion, MS Copilot (Teams)

Immersive Learning Environments — The Third Group

What's Next After Media Tools and Platforms?

Let's go beyond screens — into virtual worlds where education becomes fully immersive and interactive

Not Just Learning — Full Presence

These platforms simulate real learning spaces — not just information, but experience

Key Platforms in Group 3

Platform	Main Features	Educational Use
Spatial.io	- Easy 3D environment creation via browser or VR headset; - Supports voice, video, documents, PDFs, 3D models; - Free for basic use; - No complex registration required.	- Seminars, workshops, meetings, mini-conferences; - Project and creative work presentations; - Collaborative work on multimedia, architecture, design.
Engage VR	- Powerful platform built for universities and schools; - Supports 3D objects, presentations, video, interactivity; - Custom virtual classrooms, labs, scenes; - Features for recording, testing, LMS integration.	- Full course creation in VR; - Virtual lectures and classes; - Trainings and simulations (e.g. medicine, engineering); - Virtual internships and field trips to museums/factories.

Content from these platforms can be integrated with Moodle or other LMS systems through meeting links, or used as extensions for specific courses — for example, VR-based presentations or interactive workshops.

Comparison Table: Spatial.io vs. Engage VR

Criteria	Spatial.io	Engage VR
Platform Purpose	General platform for meetings, presentations, collaboration	Specialized educational platform for courses, training, and simulations
Media Support	Video, 3D objects, images, PDFs, voice	Video, presentations, 3D objects, quizzes, text, assessments
Browser Access	Yes	Yes
VR Headset Support	Yes	Yes
LMS Integration	No (but links can be added to Moodle, Notion, etc.)	Yes (via API and SCORM)
Ready-to-use Learning Spaces	Partial (rooms customizable but not education-focused)	Yes (classrooms, labs, scenes included)
Course Creation Capability	Limited — mainly a space for meetings	Full support — with built-in course manager
Education Focus	No — mixed use (business, art, NFT, galleries)	Yes — fully education-oriented
Pricing Policy	Basic version is free, premium available	Paid, with educational licenses and free access via partnerships

Two Platforms Leading the Way in Immersive Learning

Spatial.io

— Browser-based, no install needed

— Create & join 3D rooms in seconds

— Upload images, videos, PDFs, 3D models

— Great for workshops, design, creative teamwork

— **Free for basic use**

Engage VR

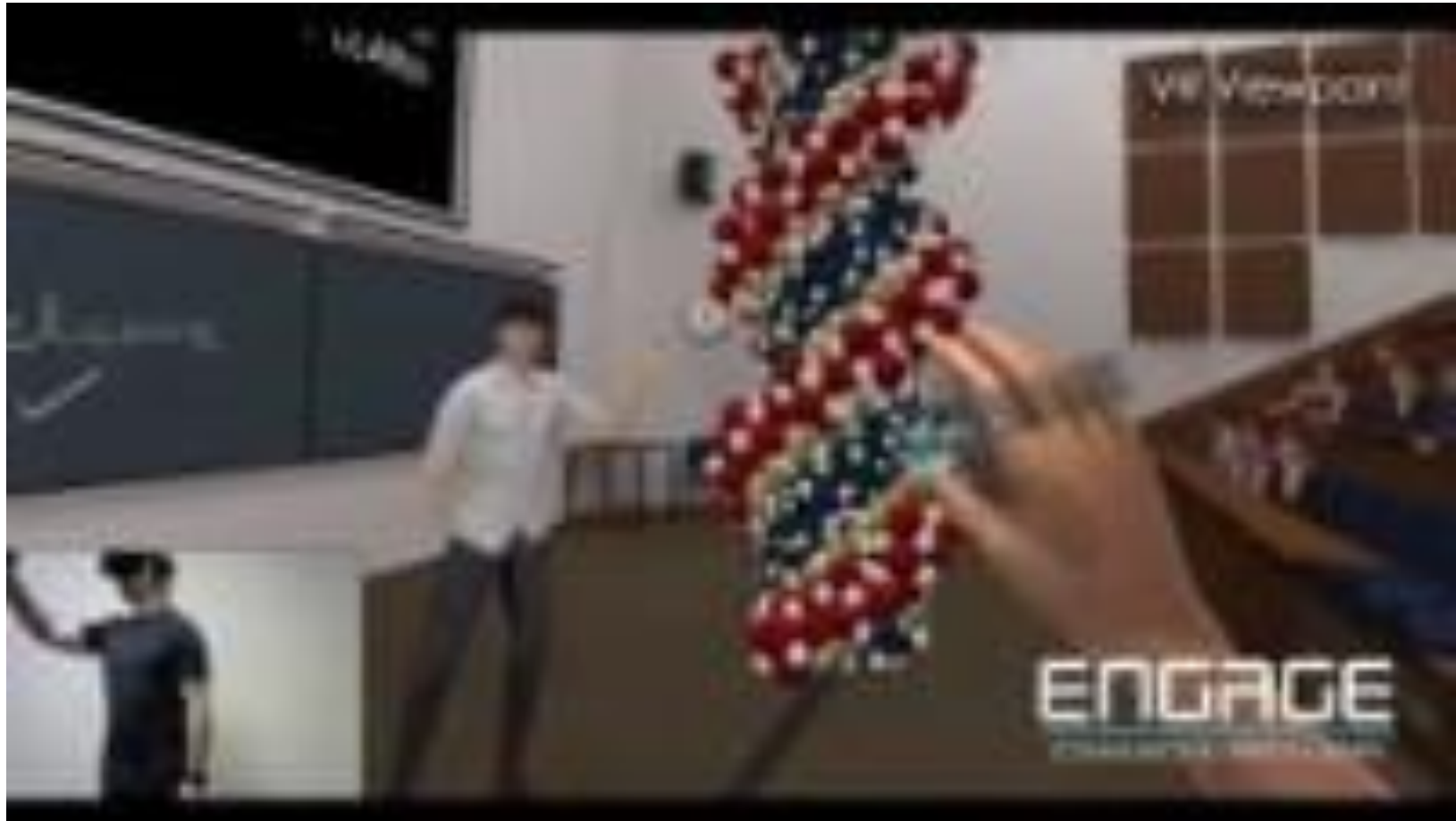
— **Built specifically for education**

— Custom virtual classrooms, labs, simulations

— Supports 3D content, video, testing

— **Integrates with LMS** (like Moodle)

— Enables recording, exams, and VR field trips



Engage VR: Education of the Future ?

The School of AI

A dedicated space inside Engage VR where students explore complex ideas through simulations, immersive examples, and 3D data visualization

AI-Generated 3D Avatars

— Guide tours

— Act as tutors or moderators

— Talk to students using natural language

— Adapt using AI-based behavior

What's Possible for Educators?

Lecturers can create their own virtual AI assistant

— always present, always supportive,

24/7 in the VR classroom

AI-Powered Personalization in VR

AI-driven **adaptive VR environments** can tailor rehabilitation programs dynamically, ensuring that each user's unique needs are met. The core personalization methods include:

- **User assessments & surveys** – Before entering a VR space, users complete an adaptive questionnaire that evaluates their emotional state, physical condition, and stress levels.
- **Natural language & voice processing** – AI analyzes text and speech patterns to determine the most suitable rehabilitation strategies.
- **Personalized content recommendations** – Users receive tailored VR experiences, whether therapeutic programs, educational courses, or social engagement activities.
- **Real-time adaptation** – AI modifies the VR environment dynamically based on facial expressions, voice tone, and behavior patterns.

This **hyper-personalized approach** ensures that each individual receives an effective and comfortable rehabilitation experience, promoting smoother adaptation.

AI-Powered Personalization

Conclusion: Transforming Inclusion into Action

- **Inclusion today** means more than accessibility — it means **flexibility**, **resilience**, and **personalization**.
- We now have **the tools** — AI, interactive media, distributed platforms — **to make inclusive learning a reality**.
- The key to success is to make these **tools** practical and scalable **for every lecturer and student**.
- **Workflows and toolkits** help move **from idea to action**.
- **Next step**: expand collaboration with universities and EdTech developers to implement adaptive, inclusive systems at scale.