Part 3: Current trends and technologies supporting digital inclusion

Inclusive design in digital learning

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Content

- **Universal Design for Learning (UDL)** and its role in digital equity
- **Assistive technologies and accessibility tools** (screen readers, speech-to-text, etc.)
- **Empowering underrepresented groups** in digital learning environments

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Inclusive design in digital learning and training activities

- The first pillar of the European Pillar of social rights (2017) states that "**everyone has the right to quality and inclusive education, training and life-long learning in order to maintain and acquire skills that enable them to participate fully in society and manage successful transitions in the labour market**."
- The Digital Education Action Plan (2021 – 2027) sets a common vision of **high-quality, inclusive, and accessible digital education across Europe**, supporting the adaptation of education and training systems to the digital age.
- While the transition to digital education is inevitable, it must be implemented in a way that caters to the needs of all individuals effectively

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Inclusive design in digital learning and training activities

- The EU Directive on the accessibility of the websites and mobile applications of public sector bodies (2016) concerns all websites, apps and files of the public administration or created with public money.
- Web accessibility allows everyone to perceive, understand, navigate, and interact with the Internet.
- **Simple changes that make websites and apps more accessible can help everyone**.
- For instance, being able to listen to text when it's too dark to read or reading subtitles on videos in a noisy environment.

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Important!

While the transition to digital education is inevitable, it must be implemented in a way that caters to the needs of all individuals effectively

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Universal Design for Learning (UDL)

- As higher education institutions across the EU continue to embrace digital transformation, ensuring equitable access to learning opportunities has become a critical priority.
- One key approach to achieving this goal is using **Universal Design for Learning** (UDL)
- UDL is understood as an **inclusive educational framework that aims to meet the diverse needs of all learners by providing flexible learning environments, multiple ways of engaging with content, and varied methods of expression**.
- UDL emphasises that every learner, regardless of their abilities, background, or learning preferences, should have equal opportunities to succeed in education.

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What is Universal Design for Learning (UDL)?

- UDL recognises that there are different ways of learning and learners might benefit from different learning techniques.
- There are three main principles: **Engagement, Representation and Action and Expression** (CAST, n.d.).
- Applying UDL principles in digital environments ensures equitable access and optimal learning experiences for all individuals, regardless of their abilities or learning styles.

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What is Universal Design for Learning (UDL)?

- This approach involves providing **multiple means of representation**, such as offering content in various formats like text, audio, and video, to cater to different learning modalities. Additionally, interactive elements and multimedia can enhance engagement and comprehension.
- **Incorporating multiple means of action and expression** allows learners to demonstrate their understanding through various methods, such as written responses, audio recordings, or interactive simulations
- Providing **multiple means of engagem**ent, such as offering choices, fostering collaboration, and promoting relevance, helps to motivate learners and sustain their interest in digital learning environments.

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Universal Design for Learning (UDL)

- While UDL is not yet officially defined by a single overarching EU directive or legislation, its principles align **with key EU goals for inclusivity, accessibility, and equity in educatio**n.
- UDL is promoted in various EU policies and frameworks that advocate for more flexible, accessible, and personalised learning experiences, particularly in the context of digital transformation and the growing emphasis on lifelong learning.
- Some EU-level initiatives where UDL principles are either explicitly or implicitly referenced include:
  - The European Education Area (EEA) – The EU's initiative aimed at making education more inclusive, accessible, and tailored to the diverse needs of learners.
  - Digital Education Action Plan (2021-2027) – This plan emphasises digital inclusion and creating learning environments that are flexible and accessible

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Universal Design for Learning (UDL)

- By using UDL, digital content creators design materials that are flexible and customisable, accommodating diverse needs and preferences.
- **Harnessing the power of digital technologies is a key point of UDL**, as these tend to be flexible and can provide more efficient opportunities for individualisation and removing barriers for learners (OECD, 2023).
- Overall, integrating UDL principles in digital education fosters inclusivity, enhances accessibility, and promotes effective learning experiences for all learners.

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Universal Design for Learning in Higher Education – License to Learn Project

- As part of this Erasmus+ funded project, project partners created A Best Practice Guideline and suggested **ground rules** for implementing UDL in higher education

- Full document is available here: UDL Best Practice Guidelines

1. Develop an over-arching institutional policy
2. Use the expert knowledge of the diverse users
3. Create clear and challenging vision
4. Form sustainable strategies at all levels
5. Develop action plans for implementation coherent with budgets and other important plans
6. Use/develop your system for evaluation and quality assurance

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Universal Design for Learning (UDL)

- In the context of digital equity, **UDL offers a promising model for bridging gaps in access to digital resources, technologies, and opportunities for participation in the learning process**.
- By incorporating UDL principles, higher education institutions can ensure that their digital learning environments are **not only technologically accessible but also pedagogically inclusive**, facilitating greater participation and success for all students, regardless of their starting point.

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UDL and its role in promoting digital inclusion

1. **Inclusive digital content**
   - UDL encourages the creation of digital content that is accessible to all learners. This means using technologies like **screen readers, captions, alternative text, and customisable font sizes** to ensure that digital resources are usable for everyone.
2. **Flexible learning tools and platforms**

- UDL supports the development and use of digital tools and platforms that offer students multiple ways to interact with the content, express themselves, and engage with their peers. For example, learning management systems (LMS) **that allow students to choose from different formats** (e.g., video, text, audio) or **access content at their own pace**.

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UDL and its role in promoting digital inclusion

3. **Ensuring equal access to technology**
   - UDL advocates for the design of digital learning environments that are accessible to students with **varying levels of digital literacy** and ensure that students in underserved areas have access to the internet and necessary devices.
4. **Personalised learning**
   - UDL promotes personalised learning experiences that cater to individual strengths, preferences, and challenges. Digital tools, **such as adaptive learning technologies and assistive devices, can help tailor content to each learner's needs**.
   - This approach ensures that students from diverse backgrounds, including those with learning disabilities or those who face social and economic challenges, can learn at their own pace and in ways that suit them.

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UDL and its role in promoting digital inclusion

5. **Removing barriers to learning**
   - One of the primary goals of UDL is to eliminate barriers that may hinder students' learning experiences.
   - In a digital context, these barriers could include inaccessible websites, poorly designed e-learning platforms, or content that doesn’t accommodate students with disabilities.
   - By applying UDL principles, educators and institutions can ensure that all digital learning environments are designed to be universally accessible.

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Assistive technologies and accessibility tools

- Assistive Technology (AT) often refers to **technology products as well services and systems in order, enable people to live healthy, productive, independent lives with dignity and to participate in education, the labour market and civic life**
- The Global Report on Assistive Technology (2022) identifies two of the main definitions that are gaining more ground in the sense of developing a more common understanding and language around AT the WHO definition and the ISO definition in this Guide both definitions seem relevant.

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ISO definition

An assistive product is any product (including devices, equipment, instruments and software), specially produced or generally available, used by or for persons with disability for participation; to protect, support, train, measure or substitute for body functions/structures and activities; or to prevent impairments, activity limitations or participation restrictions.

WHO definitions

Assistive technology is the application of organised knowledge and skills related to assistive products, including systems and services. An assistive product is any external product (including devices, equipment, instruments or software), specially produced or generally available, the primary purpose of which is to maintain or improve an individual's functioning and independence, and thereby promote their well-being.

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Assistive technologies and accessibility tools

- Assistive technologies and accessibility tools are essential for creating inclusive and equitable learning environments, particularly for students with disabilities or learning difficulties.
- These tools support students in overcoming barriers to learning and enable them to access content, communicate effectively, and demonstrate their knowledge in various ways.

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The most common assistive technologies and accessibility tools

1. **Screen readers**
   - Screen readers are software programs that convert digital text into synthesised speech or Braille. These tools are vital for students who are blind or visually impaired.
   - **Examples:**
     - JAWS (Job Access with Speech): One of the most popular screen readers for Windows, used by individuals with visual impairments.
     - VoiceOver: A built-in screen reader on Apple devices (Mac, iPhone, iPad).
     - NVDA (NonVisual Desktop Access): A free, open-source screen reader for Windows.
     - TalkBack: A screen reader for Android devices.

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The most common assistive technologies and accessibility tools

2. **Speech-to-Text (STT)**
   - Convert spoken words into written text, making it easier for students to communicate and participate in written activities, especially for those with physical disabilities or writing difficulties.
   - **Examples:**
     - Dragon NaturallySpeaking: A highly accurate commercial software used for dictation and controlling devices via voice commands.
     - Google Dictation: Built into Google Docs and Google's virtual assistant, available for free and integrated into many devices.
     - Microsoft Dictate: A speech-to-text tool that integrates with Microsoft Office applications like Word and Outlook.

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The most common assistive technologies and accessibility tools

3. **Text-to-Speech (TTS)**
    - Text-to-speech tools convert written text into spoken words. These tools are essential for students with visual impairments, learning disabilities like dyslexia, or those who benefit from auditory learning.
    - **Examples:**
        - Read&Write: A popular tool for students with learning differences, offering both text-to-speech and other accessibility features.
        - Kurzweil 3000: A comprehensive tool that reads text aloud and also provides additional study aids like note-taking, highlighting, and audio feedback.
        - Speechify: A TTS tool that converts web pages, documents, and e-books into speech, available as a browser extension or app.

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The most common assistive technologies and accessibility tools

4. **Closed captioning and subtitles**

- Closed captioning (CC) provides a text representation of spoken words and sounds in multimedia content.
- **Examples:**
  - YouTube Captions: YouTube offers auto-captioning and manual subtitle uploads for videos.
  - Vimeo: Offers captioning options for videos hosted on its platform.
  - Described and Captioned Media Program (DCMP): Provides accessible media with captions for educational purposes.

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The most common assistive technologies and accessibility tools

5. **Keyboard accessibility and alternative input devices**

- Tools that allow students to interact with computers and digital devices using adaptive keyboards or other input methods. These are especially helpful for students with motor disabilities or physical impairments that make traditional typing difficult.
- **Examples:**
  - Switch Access: Allows students to use a single switch or multiple switches to control a computer or device.
  - Eye Gaze Technology: Devices like Tobii use eye movement to control the cursor and interact with the computer.
  - On-Screen Keyboards: These allow students to click on virtual keys using a mouse, trackpad, or switch device instead of a physical keyboard.

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The most common assistive technologies and accessibility tools

6. **Adjustable text and screen customisation tools**

- Tools that allow users to adjust the display of content on digital devices, such as changing font size, contrast, and color schemes. These tools help students with visual impairments or learning disabilities that affect reading.
- **Examples:**
  - ZoomText: A screen magnifier and reader for low-vision users, enabling them to zoom in on content and adjust screen colors.
  - Microsoft Ease of Access: Built-in accessibility features in Windows, such as text size adjustment, high contrast mode, and magnification.
  - Chrome Extensions: Extensions like Mercury Reader can remove distractions and customize text on websites for better readability.

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Empowering underrepresented groups in digital learning environments

- In digital learning environments, underrepresented groups refer **to individuals or communities who face significant barriers to access, participation, and success in digital education**.
- Individuals with disabilities, the ones from low socio-economic backgrounds, the ones living in rural or romore areas, migrants and refugees, ethnic and racial minorities are typicially considered underrepresented in digital learning environments

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Success stories

- European Universities Initiative: **The European Digital UniverCity (EDUC) Alliance** involves universities from several countries working together to provide inclusive and accessible digital education for all students, including those from marginalized communities.

Success stories

- Peer Mentoring Programs: Many European universities are implementing digital peer mentoring programs to support students from vulnerable backgrounds.
- These programs pair students with more experienced peers who can offer guidance on navigating digital platforms, studying online, and balancing academic and personal responsibilities.
- The University of Glasgow offers an online peer mentoring program where students from disadvantaged backgrounds are paired with senior students who provide guidance on academic success and digital tools.

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What does it mean to be digitally excluded?

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Let’s find out!

- Take [the digitally excluded challenge]
- While taking the challenge, focus on these **guiding questions:**
  - **How did participating in this challenge make you feel? Did it give you a new perspective on digital exclusion?**
  - **Do you think the challenge was useful in highlighting the issue of digital exclusion? Why or why not?**

Digitally Excluded Challenge was created by European Training Foundation (ETF), Digital Collective (DigiCo), and International Training Centre (ITF).

https://digitallyexcluded.org/en/language-effect.html

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