Report: Introducing Universal Design for Learning (UDL) & Artificial Intelligence in LBS

Image generated with Copilot AI Designer. Prompt: Inclusion in the learning environment

I. Introduction

This year, our UDL/AI group consisting of Literacy Link South Central (LLSC), QUILL Network, and Adult Basic Education Association (ABEA) facilitated two webinars exploring the use of Universal Design for Learning (UDL) principles and Generative Artificial Intelligence (AI) tools in literacy and basic skills programming.

We held webinars on October 23rd, 2023, and February 2nd, 2024, in which we explored the following topics:

- AI + literacy: What delights us and what scares us?
- Introduction to Chat GPT (its history, prompts & plug-ins)
- The UDL & AI Connection (creation, generation, fact-checking)
- UDL & Learning Intake
- UDL & Learner Assessment
- Tips for AI & its UDL connection
- Tips for AI & Fact-checking

After each webinar, our group surveyed participants about their learning experience and focused on items they felt were most important to their instructional practice. The following report contains recommendations and tips for using UDL and AI based on the webinar presentations and participant feedback. We have designed this report to be easy to skim or scan, as well as read and explore closely. We hope that you find them useful.

We request that once you have read/perused our report, you fill out a short survey evaluating our findings.

I. Universal Design for Learning & LBS Assessments

Universal Design for Learning checkpoints and guidelines urge us to reflect on what we want to achieve with assessments. They challenge us to recognize that individuals are unique and learn in different ways, and they also demonstrate their learning in various ways.

Technology is an increasingly powerful tool that can make it easier to create UDL-friendly assessments. LBS practitioners can develop multiple ways for learners to demonstrate their learning through UDL-informed assessments. Creating assessments with relevant and engaging content will keep learners motivated and involved.

Three key questions that can help you as you redesign your assessments are

- How is the assessment linked to the learning goal?
- How does the assessment engage the learner?
- What barriers might learners experience?

Universal Design for Learning (UDL) and Assessment Development

- Learners have different ways to demonstrate learning, so assessments should be structured to reflect
    - How learners can answer questions in more than one way
- Assessments do not need to be as formal as they once were; this can help decrease test anxiety, which can produce inaccurate results
- When reviewing assessments with learners, do not just focus on areas they need to improve; highlight their strengths as well
- We must also strive to find multiple ways to present assessment materials to meet executive function and accessibility needs
- We should also ensure assessments are accessible – this could mean offering a digital option, making sure learners can use assistive devices, and provide additional time to take assessments, etc.

Why Universal Design is Important for Assessments

UDL ensures that we

- Engage learners with relevant tools they can master and take into the real world to see how capable they are
- Help them learn to recognize their strengths
- Help them see how capable they are not despite, but due to the barriers they face

UDL- Friendly Assessments

UDL-friendly assessments

- Aim to identify and eliminate potential barriers before learners encounter them
- They use relevant and interactive source material that learners can relate to
- They allow learners to give feedback and insight into what works well and what needs to be improved

UDL Checkpoints and Assessments most relevant to LBS

We want to highlight the following UDL checkpoints which we see as especially relevant to LBS. You can explore these checkpoints further by visiting the CAST Guidelines for UDL: https://udlguidelines.cast.org/

Checkpoint 1.1

- There should be multiple methods for learners to receive assessment materials when possible
- Learners should be able to complete assessment activities in multiple ways when possible

Checkpoint 4.1

- Learners should have access to assistive technology and devices when needed
- Teachers should be able to show learners how to use these devices instead of expecting learners to teach themselves

Checkpoint 4.2

- Learners should be empowered to advocate for their needs

Checkpoint 5.2

- Assessments should allow learners to express themselves and provide answers in multiple ways

Checkpoint 6

- Executive functions are less malleable for adults, meaning it can take adults more time to recognize how they learn best
- Scaffold tasks and areas of assessments to keep pace with the learner
- Executive functioning abilities are unique to each person

Checkpoint 7.2

- Design assessments and questions in a manner that promotes critical thinking skills
- Use examples, stories and situations to help learners visualize concepts
- Don't forget that inclusion also means content should be as culturally and socially broad as possible
- It's essential that teachers do their best and try to make assessments UDL friendly; it's not about perfection but effort

Checkpoint 7.3

- The environment needs to be adapted to learners so they can focus on completing tasks and assessments the way that works best for them

Checkpoint 8.4

- Don't shy away from sharing areas for improvement, but do so in a constructive manner
- Strategize how you can assist learners with their learning gaps

II. UDL & LBS Intake

LBS practitioners can use UDL tools and techniques during the learner intake process to make the learner's experience more comfortable and motivational:

- Ask learners to share more specific information about their personality, needs, challenges, and preferred ways to learn
- Ask learners about technologies they currently use
- Share information with learners in a variety of ways, e.g., videos, audio clips, interactive PowerPoints, etc.
- Use images, infographics, and the like
- Make documents and forms more accessible - in design, navigability, and format (online vs. paper-based)

Creating Accessible Documents

You can follow these 8 tips for creating accessible LBS documents using Microsoft Word that will help meet the needs of a wide range of learners:

1. Use the **Styles Pane** as a way of applying formatting to paragraphs of text.
2. Make sure all images have **Alternative Text (Alt Text)** - a textual substitute for non-text content.
3. Use **descriptive text** for hyperlinks, as opposed to "Click here" followed by the link.
4. Use clear **fonts** and colour wisely. For example, use dark coloured text on a light background. Avoid green and red/pink, as these colours are difficult for people with colour blindness.
5. Do not use **colour** as the only visual means of conveying information.
6. Use simple **table structure** to display content.

7. Use the **Accessibility Checker** to verify your document against a set of rules that identify possible issues for people with disabilities.

It is important to involve learners in the creation of tasks and to ask them for regular feedback.

I. Integrating UDL & Artificial Intelligence (AI)

We want to help practitioners integrate Universal Design for Learning (UDL) and Artificial Intelligence (AI) into their instructional practice. The following recommendations come to mind for all adult educators:

Understand UDL and AI:

- Allow opportunities for educators to familiarize themselves with the principles of UDL, which aims to create inclusive learning experiences for all learners by reducing barriers and providing multiple means of engagement, representation, and action/expression.
- Explore how AI technologies can enhance personalized learning experiences, adapt content, and provide real-time feedback by building a channel where everyone can safely share thoughts and experiences.
- Invest in professional development with case studies and examples to integrate the AI framework and Artificial Intelligence.

Collaborate and Learn:

- Engage in professional development opportunities to learn about UDL and AI. Attend workshops, conferences, and webinars to stay informed about best practices.
- Allow opportunities for a Community of Practice with colleagues and local and provincial LBS support organizations. Try and book guest speakers (technology experts) to share insights and strategies.

Design an Accessible Content Framework everyone can follow:

- Apply UDL principles when creating learning materials. Provide options for different formats (text, audio, video) and ensure accessibility features such as alt text for images, in line with text images, descriptive hyperlinks, heading styles, and sans serif fonts are standard formats.
- Use the accessibility checker tool to analyze content and provide suggestions for improving accessibility. However, remember to manually review the content, as the

accessibility checker may not identify all errors mentioned in the previous recommendation.

Personalize Learning Paths:

- Leverage AI algorithms to tailor learning experiences based on individual needs. Adaptive learning platforms can adjust content difficulty, pacing, and pathways.
- Consider learners' preferences, interests, and prior knowledge when designing personalized learning paths.

Assess and Monitor Progress:

- Use AI-driven assessment tools like Duolingo to track learner progress and adapt lessons-based performance. Duolingo's adaptive assessments can dynamically adjust questions based on performance so that learners monitor their language proficiency and receive targeted learning activities.
- Regularly review data to identify areas for improvement and adjust learning activities and training strategies accordingly.

Promote Self-Regulation:

- Encourage learners to set goals, monitor their progress, and reflect on their learning experiences.
- AI can provide timely feedback, suggest additional resources, and prompt self-assessment.

Foster Collaboration and Communication:

- UDL emphasizes social interaction and collaboration. Use AI-supported tools such as Microsoft Teams for virtual collaboration, engagement, discussion forums, and peer feedback. Microsoft Teams offers AI summarization, their PowerPoint Present Live, options for live subtitles in different languages, live reactions with several emojis, and the ability to navigate back to previous slides and provide feedback to the presenter.

Ethical Use of AI:

- Educators should be aware of ethical considerations related to AI. Discuss privacy, data security, and transparency with learners.
    - Incorporate the concepts of deep fakes, fact-checking, and proper content of AI citation into the curriculum.

Continuous Improvement:

- UDL and AI are dynamic fields. Stay informed about emerging technologies, research, and best practices by subscribing to bite-size AI newsletters.

II. Practical examples of AI use in LBS

Some practical examples of AI use in LBS that we shared include:

Multiple Means of Representation (UDL Principle):

AI-Generated Alt Text: When an instructor uploads an image or diagram, AI can automatically generate alternative text (alt text) to describe the visual content. Alt Text benefits those who use screen readers or learners who prefer text-based information. However, it's important to remember that too much description can generate confusion and clutter. Thus, manual check-up to ensure the content aligns with the principles of alt text is required.

1. Feedback and Self- Assessment (UDL + Feedback)

Chatbot support. AI can provide timely feedback, enhancing the learning process. Chatbots can offer instant feedback on writing and simple math algorithms. It can scaffold answers and create different examples on the same subject.

2. Inclusive Chatbots (UDL + AI):

Accessibility and UDL questions powered by LUDIA: A chatbot answers questions about accessible formats, accommodations, or UDL principles.

3. Natural Language Processing (NLP) for Accessibility (AI):

Text-to-Speech (TTS): An AI-powered TTS tool in Microsoft CoPilot reads aloud the content input. Learners can also use dictation to ask questions to the chatbot.

4. What is AI, and Where you find it?

A Practical Approach. Begin with a reflection of AI in our lives and how we already use it to automate tasks or receive services. Explain its possibilities in learning environments and how AI literacy may impact learners in the community, the workplace, and homes.

III. AI & Fact-checking

At both of our webinars, we discussed how AI can help instructors and learners conduct research, learn new concepts, and discover information. But we focused on the fact that AI does not guarantee that the information it shares is factually correct.

In that presentation, we looked at different ways to fact-check focusing on how instructors and learners can fact-check **search engine** results:

1. Go to the top-ranked sites
2. Check the sites for their sources
3. Compare the sources data points (and claims) with other search results
4. Conduct a general search about a specific data point to see if contradictory results appear
5. Refine your search terms for impact
6. Conduct a similar search using a different search engine (compare results)

And we looked at how they can fact-check **AI** results:

1. Check the bot's sources (follow the links it provides)
2. Paste your prompt into a search engine, then compare the results with what the bot told you
3. Modify your original prompt to see if the answer you receive from the bot *changes*
4. Seek a non-digital source: a person, book, periodical, film, work of art (visit a library – even if it means visiting digitally)

We also explored how instructors and learners can fact-check for **inclusion** to ensure the resources they use are as free of racial, gender, sexual, creedal bias as possible:

1. Ask the bot about its biases
2. Ask it what kinds of resources you have *not* used
3. Have the bot introduce you to the different types of source materials available
4. If you use one type of source, ask the bot how this approach conflicts with equity, diversity, and inclusion

Survey link

Please take a moment to complete this short survey. We need your feedback to ensure that we have performance goals for the year.

Thank you very much!

References:

10 eLearning AI Tools Transforming Education (murf.ai)

UDL: The UDL Guidelines (cast.org)