# Providing multiple means of representation is more than just supplying captions!

Guideline 1

Multiple means of representation

###

# Providing multiple means of representation is more than just supplying captions!

### UDL Pillars

1. provide options for perception.
2. provide options for language and symbols.
3. provide options for comprehension.

**Goal:** Learners who are resourceful and knowledgeable

## What? – Summary

While providing captions and transcripts for videos is essential, offering multiple means of representation goes beyond this. It encourages instructors and course creators to provide various methods of illustrating relevant material to teach the learning outcomes effectively. This can be achieved in several ways, including:

* **Transcripts**: Text transcripts of all video content to support students who prefer reading or need to review the material in detail.
* **Closed Captions**: Captions for all video content to aid students with hearing impairments and those who benefit from reading along.
* **Slide Decks**: Presentation slides used in the video lectures, available for download, allowing students to review and take notes.
* **Infographics and Charts**: Visual representations of key concepts discussed in the videos, such as market trends, financial models, and risk assessments.
* **Interactive Quizzes**: Quizzes embedded within or following the video content to reinforce learning and ensure understanding of key points.
* **Glossary of Terms**: A glossary of financial terms mentioned in the videos, with definitions and examples, to support comprehension.
* **Supplementary Readings**: Articles, research papers, and case studies that provide deeper insights into the topics covered in the videos.
* **Discussion Forums**: Online discussion boards where students can ask questions, share insights, and discuss the video content with peers and instructors.

## Why? – Benefits

By implementing these diverse methods of representation, educators can enhance the learning experience significantly. But why is this approach so crucial for student success?

* **Enhanced Accessibility:** Providing diverse formats ensures that all students, including those with disabilities, can access and engage with the material. For example, transcripts and captions support students with hearing impairments, while visual aids help those with visual learning preferences.
* **Improved Comprehension:** Different students have different learning styles. By offering materials in various formats (text, audio, visual, interactive), students can choose the method that best suits their learning style, leading to better understanding and retention of the content.
* **Increased Engagement:** Interactive elements like quizzes, simulations, and discussion forums make learning more engaging and dynamic. Active participation helps maintain student interest and encourages deeper exploration of the subject matter.
* **Personalised Learning:** Adaptive learning technologies and varied content formats allow students to learn at their own pace and revisit challenging concepts as needed, providing a more personalised and effective learning experience.
* **Better Retention:** Presenting information in multiple ways reinforces learning. For instance, a student might first encounter a concept in a video, then see it reinforced in a text, and finally engage with it in an interactive quiz, aiding long-term retention.
* **Greater Flexibility:** Multiple means of representation offer flexibility in how and when students engage with the course material. This is particularly beneficial for students with varying schedules, learning environments, or personal circumstances.
* **Enhanced Critical Thinking:** Exposure to different types of content and perspectives encourages students to think critically and develop a more well-rounded understanding of the subject matter.
* **Collaborative Learning:** Discussion forums and group projects foster collaboration and communication among students, helping them to develop interpersonal skills and learn from diverse viewpoints.

By incorporating multiple means of representation, educators create a more accessible, inclusive, and effective learning environment that supports all students' educational journeys.

## How? – Implementation

Implementing multiple means of representation in an online course can greatly enhance student engagement and learning. Understanding the benefits of multiple means of representation is essential, but the next step is to explore how these strategies can be effectively implemented in an online learning environment.

## Practical Examples in a Financial Services Course

### **Types of Video Content**

* **Lecture Videos**: Short, focused video lectures on specific financial topics such as investment strategies, risk management, and market analysis.
* **Case Study Videos**: Videos that analyse real-life financial cases, illustrating key concepts and decisions made by financial experts.
* **Expert Interviews**: Interviews with professionals in the financial industry discussing current trends and best practices.

### **Video Lecture on Investment Strategies**

* **Supporting Transcript**: A downloadable text transcript of the video lecture.
* **Closed Captions**: Enabled captions on the video player.
* **Slide Deck**: Downloadable slides used in the lecture, highlighting key investment strategies and examples.
* **Infographic**: A visual summary of different investment strategies, comparing their risk and return profiles.
* **Interactive Quiz**: A quiz at the end of the video to test understanding of the investment strategies discussed.
* **Glossary**: Definitions of terms like “diversification,” “risk tolerance,” and “asset allocation” mentioned in the lecture.
* **Supplementary Reading**: A research paper on the historical performance of various investment strategies.
* **Discussion Forum**: A dedicated thread where students can discuss the investment strategies, share their thoughts, and ask questions.

### **Case Study Video on Financial Crisis**

* **Supporting Transcript**: A detailed transcript of the video case study.
* **Closed Captions**: Captions to ensure accessibility.
* **Slide Deck**: Key points and data from the case study in a downloadable slide format.
* **Charts and Graphs**: Visual representations of financial data before, during, and after the crisis.
* **Interactive Quiz**: Questions related to the case study to reinforce learning.
* **Glossary**: Terms like “subprime mortgage,” “credit default swap,” and “liquidity crisis” explained.
* **Supplementary Reading**: An article analysing the impact of the financial crisis on global markets.
* **Discussion Forum**: A space for students to discuss the case study, share perspectives, and engage with peers.

### **Expert Interview on Market Trends**

* **Supporting Transcript**: Transcript of the interview for text-based review.
* **Closed Captions**: Captions available for accessibility.
* **Slide Deck**: Key insights from the interview summarised in slides.
* **Infographic**: A visual summary of current market trends discussed in the interview.
* **Interactive Quiz**: Questions to test understanding of the market trends discussed.
* **Glossary**: Definitions of terms like “bull market,” “bear market,” and “market volatility.”
* **Supplementary Reading**: A report on recent market performance and predictions.
* **Discussion Forum**: An online space to discuss the interview content, ask questions, and share insights.

**Use your LMS and harness the power of your learning platform**

Guideline 2

Multiple means of engagement

## Use your LMS and harness the power of your learning platform

### UDL Pillars

1. provide options for recruiting interest
2. provide options for sustaining effort and persistence
3. provide options for self-regulation

**Goal:** Learners who are purposeful and motivated

## What? – Summary of guideline

Embedding content directly into a Learning Management System (LMS) allows educators to harness the full power of the web, transforming how students engage with educational materials. The web's dynamic nature offers a wealth of opportunities for creating an inclusive and accessible learning environment that static files like PDFs or Word documents simply cannot match.

By fully leveraging the capabilities of the web, educators can create a more dynamic, accessible, and engaging learning environment within their LMS. This approach not only enhances the learning experience but also ensures that all students, regardless of their abilities or devices, can access and benefit from the educational content.

## Why? – Benefits

One of the most significant advantages of leveraging web-based content in an LMS is the ability to present information in diverse, interactive formats. Educators can integrate multimedia elements such as videos, interactive quizzes, and animations directly within the LMS. This not only enriches the learning experience but also caters to different learning styles, fulfilling the Universal Design for Learning (UDL) principle of providing multiple means of representation. With embedded web content, students can engage with materials in ways that best suit their preferences and needs, whether through video, audio, or interactive elements.

Integrating your online educational materials directly into your Learning Management System (LMS) offers several advantages over simply attaching PDFs, Word documents, or external video links. Here’s why:

**Enhanced Accessibility and User Experience**

* **Consistency in Navigation**: Embedding content directly into the LMS creates a seamless experience for students. They don’t need to switch between different platforms or deal with multiple file formats, which can be particularly beneficial for students with disabilities who rely on assistive technologies.
* **Mobile-Friendly Access**: LMS platforms often optimise embedded content for mobile devices, ensuring that students can access materials on the go without compatibility issues.
* **Accessible Formats**: LMS platforms often provide tools to ensure that all content is accessible, such as screen reader compatibility and adjustable text sizes, which is crucial for creating an inclusive learning environment.

**Better Engagement and Interactivity**

* **Interactive Content**: Many LMS platforms allow you to create and integrate interactive content such as quizzes, discussion forums, and multimedia presentations. This kind of engagement is harder to achieve with static files like PDFs.
* **Embedded Videos**: Instead of just linking to videos, you can embed them directly within the LMS, allowing for features like in-video quizzes or time-stamped comments, enhancing the learning experience.

**Streamlined Content Updates**

* **Ease of Updates**: When your materials are directly embedded in the LMS, updating content is straightforward. You can make changes in real-time without needing to re-upload documents or resend links.
* **Version Control**: Direct integration helps avoid issues with students accessing outdated materials. All learners have access to the latest versions, reducing confusion.

**Centralised Analytics and Tracking**

* **Student Progress Monitoring**: LMS platforms can track student interactions with the content, providing insights into engagement levels, time spent on each module, and areas where students might struggle.
* **Assessment Integration**: Assessments and quizzes can be directly tied to the content, allowing for automatic grading and instant feedback, which enhances the learning process.

**Security and Intellectual Property Protection**

* **Content Security**: Materials embedded within an LMS are often more secure than PDFs or Word documents, which can be easily shared without permission. The LMS can restrict access based on user roles, protecting your intellectual property.
* **Reduced Risk of Broken Links**: External links can change or become unavailable, but content directly within the LMS is under your control, ensuring that students always have access to the resources they need.

By embedding materials directly into your LMS, you create a more streamlined, engaging, and accessible learning experience that benefits both educators and students.

## How? – Practical Implementation (examples)

To ensure accessibility when embedding content in a Learning Management System (LMS), educators can follow these best practices:

**Use Accessible Formats**

* **Alt Text for Images**: Always include descriptive alternative text (alt text) for images, diagrams, and charts. This ensures that students using screen readers can understand visual content.
* **Caption and Transcribe Videos**: Provide closed captions for all video content and, where possible, offer transcripts. This benefits students who are deaf or hard of hearing, as well as those who prefer reading or need to review the material.

**Ensure Content is Screen Reader Compatible**

* **Structured Layouts**: Use headings, lists, and proper formatting (e.g., HTML tags) to organise content. This helps screen readers navigate the material more easily and ensures that the content is logical and clear.
* **Accessible Tables**: If you include tables, make sure they are structured correctly with clear headers. Avoid using tables for layout purposes, as this can confuse screen readers.

**Provide Multiple Means of Navigation**

* **Consistent Menu Structure**: Ensure that the course navigation is consistent throughout the LMS. Use clear labels for menus and buttons to help students find what they need easily.
* **Keyboard Navigation**: Ensure that all interactive elements, such as quizzes or embedded activities, are navigable using a keyboard. This is crucial for students who cannot use a mouse.

**Test Content with Accessibility Tools**

* **Use LMS Accessibility Checkers**: Many LMS platforms have built-in accessibility checkers that can identify potential issues with embedded content. Regularly use these tools to review and improve accessibility.
* **External Accessibility Testing**: Consider using external tools or services to test your content’s accessibility. This can provide a more comprehensive analysis and help catch issues that internal tools might miss.

**Design for Mobile Access**

* **Responsive Design**: Ensure that your content is mobile-friendly. Responsive design adjusts the layout based on the screen size, making it accessible on smartphones and tablets.
* **Minimise File Sizes**: Optimise images and videos to reduce load times, which is particularly important for students with limited internet access or using mobile devices.

**Offer Alternative Resources**

* **Multiple Formats**: Provide alternative formats of your content, such as offering both a video and a text summary of a lecture. This supports students with different learning preferences and needs.
* **Downloadable Content**: Make materials downloadable in accessible formats (e.g., accessible PDFs), so students can access them offline or in environments where internet access is unreliable.

**Regularly Update and Review Content**

* **Feedback Loops**: Encourage students to provide feedback on accessibility. Regularly update and review content based on this feedback to ensure continuous improvement.
* **Keep Up with Standards**: Stay informed about updates to accessibility standards, such as the Web Content Accessibility Guidelines (WCAG) and make necessary adjustments to your content.

Following these best practices ensures that your embedded content is accessible to all students, promoting an inclusive learning environment that meets diverse needs.

## Practical Examples in a Financial Services Course

### Challenges

Balancing the need for diverse content with the potential risk of overwhelming students can be managed through careful planning and clear communication. Here are some strategies:

**Organise Content Clearly**

* **Strategy:** Structure the course in a logical and intuitive manner. Use modules or units to break down the material into manageable sections.
* **Implementation:** Create a detailed syllabus or course guide that outlines the materials available for each section and explains how they interconnect.

**Prioritise Key Materials**

* **Strategy:** Highlight the most critical resources that students should focus on, while offering additional materials as optional or supplementary.
* **Implementation:** Clearly label core readings, essential videos, and key assignments. Use icons or different colours to differentiate between must-read and optional content.

**Provide Guidance on Usage**

* **Strategy:** Offer explicit instructions on how to use the various materials and how they fit into the overall learning objectives.
* **Implementation:** Include an introductory video or guide at the beginning of the course explaining the purpose of each type of material and how students can best utilise them.

**Offer Flexible Learning Paths**

* **Strategy:** Allow students to choose how they engage with the content based on their learning preferences and needs.
* **Implementation:** Create alternative assignments or allow students to select from different types of activities (e.g., written reports, presentations, interactive quizzes).

**Monitor and Adjust Workload**

* **Strategy:** Regularly check in with students to assess their workload and stress levels, and be ready to adjust the amount or type of content accordingly.
* **Implementation:** Use surveys, polls, or feedback forms to gather student input on the workload. Be flexible and willing to scale back or adjust assignments as needed.

**Utilise Learning Analytics**

* **Strategy:** Employ analytics tools to track student engagement with the materials and identify any patterns of underutilisation or overwhelm.
* **Implementation:** Use the data to make informed decisions about which materials are most effective and which may be causing overload and adjust the course content accordingly.

**Encourage Time Management**

* **Strategy:** Help students develop good time management skills to handle the diverse content without feeling overwhelmed.
* **Implementation:** Provide tips and resources on effective study habits, time management strategies, and creating study schedules.

**Seek Regular Feedback**

* **Strategy:** Continuously gather feedback from students about their experiences with the course materials and adjust as necessary.
* **Implementation:** Implement regular check-ins or feedback sessions to understand how students are coping and to make timely adjustments to the course design.

By recognising and addressing these challenges, educators can create a more inclusive and effective learning environment. Implementing these strategies can create a diverse and rich learning environment that supports all students without overwhelming them. Ultimately, the goal is to ensure that the students benefit from the diverse means of representation available to them.

**Design assignments around real-life scenarios and embrace diverse submission formats**

Guideline 3

Multiple means of action/expression

## Design assignments around real-life scenarios and embrace diverse submission formats

### UDL Pillars

1. provide options for physical action
2. provide options for expression and communication
3. provide options for executive functions

**Goal:** Learners who are strategic and goal-directed

## What? – Summary of guideline

To maximise accessibility and inclusivity in online course assessments, instructors should design assignments that cater to diverse learner needs and preferences. One key strategy is to create assignments based on real-life scenarios, which helps students apply their learning in meaningful and practical contexts, making the material more relevant to their lives.

Additionally, embracing diverse submission formats allows students to choose how they demonstrate their understanding, whether through written reports, videos, presentations, or creative projects. This flexibility supports different communication styles and learning preferences, ensuring that all students can express their knowledge effectively.

## Why? – Benefits

By implementing varied assessment methods, promoting flexibility, and embracing cultural relevance, educators can provide students with meaningful opportunities to demonstrate their knowledge, develop essential skills, and engage deeply with the content. These approaches not only empower learners but also create a more equitable and supportive educational experience for everyone.

**Personalised Learning Experience**

* **Choice and Autonomy**: Students feel empowered when they can choose how to demonstrate their learning, leading to increased motivation and engagement.
* **Tailored Support**: Instructors can provide targeted feedback based on the chosen method of expression, addressing specific needs and helping students improve their skills.

**Development of Diverse Skills**

* **Critical Thinking**: Real-life scenarios require students to apply theoretical knowledge in practical contexts, enhancing their analytical and problem-solving abilities.
* **Communication Skills**: By expressing their understanding through different formats, students develop a range of communication skills essential for professional success.

**Increased Inclusivity**

* **Equitable Participation**: Multiple means of action and expression ensure that all students, regardless of their abilities or preferences, have an equal opportunity to succeed.
* **Cultural Sensitivity**: By allowing students to incorporate their cultural perspectives into assignments, the course becomes more inclusive and reflective of a diverse student body.

**Varied Assessment Methods**

* **Diverse Outputs**: Allowing students to choose how they demonstrate their understanding (e.g., written reports, presentations, projects) caters to different strengths and preferences. In a financial services course, students might choose between creating a financial analysis report, a video presentation on market trends, or an interactive financial planning tool.
* **Personalisation**: Students can engage with content in ways that are most meaningful to them, enhancing motivation and learning outcomes. For example, a student interested in digital media could create a video explaining the impact of economic policies on different industries.

**Enhanced Accessibility**

* **Assistive Technology Compatibility**: By offering multiple ways to complete assignments, students can use tools that best suit their needs. For instance, students with visual impairments might use screen readers to write reports or voice recognition software to create presentations.
* **Flexibility**: Students with different learning needs can select the method that aligns with their abilities, ensuring equitable access to the curriculum. A student with dyslexia might prefer creating a financial model using spreadsheet software over writing a lengthy essay.

**Inclusivity and Engagement**

* **Cultural Relevance**: Real-life scenarios from diverse cultural and social contexts can be integrated into assignments, allowing students to choose topics that resonate with their backgrounds and experiences. This could involve analysing the financial systems in different countries or assessing the economic impact of local policies.
* **Collaborative Opportunities**: Group projects can incorporate real-life scenarios, enabling students to work together and learn from each other’s perspectives. This approach fosters a sense of community and inclusivity, as students contribute their unique viewpoints and skills.

## How? – Practical Implementation (examples)

When implementing guidelines to enhance accessibility and inclusivity in online assessments, consider the following strategies to navigate potential challenges effectively:

* **Start Small and Scale Gradually**: Begin by incorporating a few diverse assignment options or real-life scenarios into your assessments. As you become more comfortable and gather feedback, gradually expand these offerings to cover more course content.
* **Develop Clear and Consistent Rubrics**: Create detailed grading rubrics that apply across various submission formats. This ensures fairness and clarity in assessment, helping students understand expectations regardless of how they choose to present their work.
* **Leverage Available Technology**: Utilise accessible and widely available tools to accommodate different submission formats. Platforms like Learning Management Systems (LMS) often have built-in features that support varied assignment types. Familiarise yourself with these tools to streamline the process for both you and your students.
* **Provide Structured Choices**: While offering multiple options is beneficial, too many choices can be overwhelming. Limit the number of submission formats to a manageable few and provide guidelines or examples for each to help students make informed decisions.
* **Integrate Support for Executive Functions**: Incorporate tools like checklists, timelines, and planning worksheets directly into assignment instructions. This not only aids students in managing their tasks but also normalises the use of organisational aids.
* **Solicit and Act on Feedback**: Regularly seek feedback from your students about the effectiveness and accessibility of assessments. Use this information to make iterative improvements, ensuring that your assessments remain responsive to diverse learner needs.
* **Collaborate with Colleagues and Experts**: Engage with fellow instructors, instructional designers, and accessibility experts to share best practices and resources. Collaboration can provide new insights and alleviate the individual burden of redesigning assessments.
* **Stay Informed and Flexible**: Keep abreast of emerging technologies and pedagogical strategies that support accessibility and inclusivity. Being open to change and willing to adapt your methods will contribute to more effective implementation.

By approaching the integration of these guidelines thoughtfully and proactively, you can create a more inclusive learning environment that empowers all students to succeed.

## Practical Examples in a Financial Services Course

**Case Study Analysis**

* **Written Report**: Students analyse a financial crisis and submit a detailed written report on its causes and consequences.
* **Video Presentation**: Alternatively, students create a video presentation summarising their findings and recommendations.
* **Interactive Infographic**: For those who prefer visual expression, creating an infographic that illustrates the key points of the case study can be an option.

**Market Simulation**

* **Trading Simulation**: Students participate in a virtual stock trading simulation and submit their trading strategies and outcomes in a format of their choice.
* **Reflective Journal**: Students could keep a journal reflecting on their decisions and learning experiences throughout the simulation.
* **Group Discussion**: Students discuss their strategies and results in a group setting, either through live video sessions or discussion forums, allowing for collaborative learning and peer feedback.

**Financial Planning Project**

* **Spreadsheet Analysis**: Students create a detailed financial plan using spreadsheet software, showcasing their ability to use financial tools and interpret data.
* **Written Plan**: Another option is to write a comprehensive financial plan that includes analysis, goals, and recommendations.
* **Multimedia Presentation**: For those inclined towards creative expression, a multimedia presentation combining text, visuals, and audio to present the financial plan could be an option.

### Challenges

Implementing this guideline for maximising accessibility and inclusivity in online assessments comes with several challenges:

* **Resource and Time Constraints:** Designing diverse assessment options and real-life scenario-based assignments requires significant time and resources. Instructors may need to create multiple versions of assignments, provide various submission formats, and develop new materials, which can be time-consuming and may require additional support.
* **Ensuring Consistent Standards:** With multiple submission formats and diverse approaches to assignments, maintaining consistent grading standards can be challenging. Instructors must develop clear rubrics that fairly assess different types of work while ensuring that all students are held to the same academic standards.
* **Technical Limitations:** Some students may lack access to the technology needed for certain submission formats, such as video recording or adaptive devices. Additionally, instructors may need to familiarise themselves with various technologies to effectively support students using different formats, which can be a steep learning curve.
* **Balancing Flexibility with Structure:** While offering multiple options for expression and communication is beneficial, it can also overwhelm students, especially those who struggle with decision-making or managing open-ended tasks. Instructors need to strike a balance between providing flexibility and offering enough structure to guide students through the assessment process.
* **Supporting Executive Functions:** Developing tools and resources to support students' executive functions, such as time management and task organisation, can be difficult to implement effectively. It requires thoughtful planning to ensure that these tools are integrated seamlessly into the course and that students are encouraged and supported in using them.
* **Accessibility Across Diverse Learner Needs:** Meeting the needs of a diverse student population with varying abilities, backgrounds, and learning preferences can be complex. Ensuring that all students have equal access to the assessments and that the options provided are genuinely inclusive may require ongoing adjustments and feedback.

These challenges highlight the importance of careful planning, ongoing professional development for instructors, and a commitment to flexibility and continuous improvement in course design.