Multimedia Use

- Why It Matters
- Our Recommendation
  - 1. Reduce Noise
  - 2. Clarify Complexities
  - 3. Build Meaning

Why It Matters

Whether you're producing videos for an online course, sharing a graphic with students, building a slide-based presentation, or creating any type of multimedia presentation, there are a few key principles to keep in mind while building your content.

Our Recommendation

Based on the work of Richard Mayer\(^1\), we recommend focusing your use of multimedia by concentrating on three goals:

1. Reduce noise
2. Clarify complexities
3. Build meaning

The following sections outline how to accomplish each goal.

1. Reduce Noise

Learning is hard – don't make it harder. These first principles will ensure that you're not placing an unnecessary load on the learner's cognitive processes.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherence</td>
<td>Carefully consider whether each multimedia component is necessary to meet the desired learning outcome.</td>
</tr>
<tr>
<td><strong>Bad Example:</strong></td>
<td>This example includes unnecessary photographs, font styles, and on-screen text.</td>
</tr>
<tr>
<td><strong>Good Example:</strong></td>
<td>This example removes extraneous graphics and text.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signaling</th>
<th>Highlight essential material.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bad Example:</strong></td>
<td>As the narrator describes a specific step within the Project Management process, the entire process displays on-screen.</td>
</tr>
<tr>
<td><strong>Good Example:</strong></td>
<td>The specific step that the narrator is discussing is highlighted, focusing the learner’s attention on the most essential material.</td>
</tr>
</tbody>
</table>
2. Clarify Complexities

Trying to explain the unexplainable? These principles outline ways to clarify content that is particularly complex.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
</table>
| Redundancy | Limit multimedia to narration and animation when possible, avoid including redundant on-screen text.  
**Bad Example:** The narrator reads the on-screen text verbatim.  
**Good Example:** On-screen text is minimized and the narrator provides detailed content. |
| Spatial Contiguity | Display corresponding words and pictures near each other.  
**Bad Example:** The words are listed along the left side, separate from the image on the right.  
**Good Example:** The words are listed alongside their corresponding portion of the image. |
| Temporal Contiguity | Sync corresponding visuals and audio.  
**Bad Example:** The narrator describes the steps, then a short video demonstrates the process.  
**Good Example:** The narrator describes the steps as a short video demonstrates the process. |
Segmenting

Allow the learner to control the pace of multimedia presentations.

**Bad Example:** The presentation is delivered as an 11-minute video.

**Good Example:** The presentation is delivered as a series of 1- to 2-minute videos.

Pretraining

Provide an opportunity for learners to learn basic, prerequisite content before launching a more complex multimedia presentation.

**Bad Example:** The learner is launched immediately into a video demonstration using unfamiliar vocabulary.

**Good Example:** The learner reviews unfamiliar vocabulary before launching the video demonstration.

Modality

When possible, use graphics with spoken text rather than graphics with written text. This principle may not apply to learners with higher levels of expertise in a given subject area.

**Bad Example:** The learner's attention is split between the graphics and text.

**Good Example:** The learner processes visuals and audio independently, resulting in higher cognitive capacity.

3. Build Meaning

After you've reduced noise and clarified complexities, learners can concentrate on building their own meaning of the content. These principles will help you promote sense-making.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
</table>


### Multimedia

Present words and pictures rather than words alone.

**Bad Example:** On-screen text is presented without any visual representation.

**Good Example:** A corresponding visual representation is presented alongside the on-screen text. As a result, the learner builds connections between the verbal and visual representations.

---

### Personalization

Use a conversational tone rather than a formal tone.

**Bad Example:** The narrator uses formal, passive language.

**Good Example:** The narrator uses more conversational, direct language, and is perceived as a conversational partner. The learner works harder to understand what their “partner” is saying.

---