Design for Learning 5 - Content Creation

Best Practices for Developing Multimedia Content
(Week 1 Lesson)
Welcome to Week 1!

This lesson includes:

- Advance Organizer for Week 1 (video)
- Selected Vocabulary (table)
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- Six Principles of Effective eLearning (video, with challenge question)
- Usability and Accessibility (video, with challenge question)
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Advance Organizer for Week 1

Video Transcript:
“D4L Content Creation Week 1: Advance Organizer”
https://youtu.be/R74wVj_55h4

Hi, Helen Linda here. Welcome to the first week of the Content Creation module! Let’s discuss best practices for creating multimedia content. We’ll begin with helping you generate a quick inventory of why you want to create online content in the first place, and what key things you need to consider. Then we’ll talk about important principles of eLearning and cognition, usability and accessibility, and some examples of do’s and don’ts.

At the end of this week, you’ll be ready to evaluate existing online library instruction with these principles in mind. Let’s get started!
### Selected Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>cognitive load</td>
<td>the amount of effort going on in your working memory</td>
</tr>
<tr>
<td>information overload</td>
<td>too much information for your brain to process efficiently and remember</td>
</tr>
<tr>
<td>metacognition</td>
<td>activities where you’re aware of your own thought process</td>
</tr>
<tr>
<td>multi-modal</td>
<td>using different kinds of sensory experiences that relate to different channels within the working memory</td>
</tr>
<tr>
<td>scaffolding</td>
<td>providing temporary support to help students reach a higher level in their work than they could without assistance</td>
</tr>
<tr>
<td>multimedia principle</td>
<td>the addition of graphics to words improves learning</td>
</tr>
<tr>
<td>contiguity principle</td>
<td>when graphics are placed near related text, that also improves learning</td>
</tr>
<tr>
<td>modality principle</td>
<td>when graphics are explained with audio, as opposed to written text, that improves learning</td>
</tr>
<tr>
<td>redundancy principle</td>
<td>when graphics are explained with audio along with redundant written text, that can hurt learning</td>
</tr>
<tr>
<td>coherence principle</td>
<td>visuals, text, and sounds that aren’t directly related to the subject and necessary can hurt learning</td>
</tr>
<tr>
<td>personalization principle</td>
<td>a conversational tone and the presence of social characters can increase learning</td>
</tr>
</tbody>
</table>
Getting Started

Video Transcript:
“D4L Content Creation Week 1: Getting Started”
https://youtu.be/g1_6Thxer-g

Title Slide
Hello! This is Helen Linda again with our first presentation of week 1 of the D4L Content Creation Module. This week, we’ll help you inventory important considerations that will influence the multimedia content you create.

Slide 1
Before we jump into creating content, let’s stop and think: why would you want to create multimedia content for your library? If you’ve already gone through some of the other modules, then the instructional design plan you’ve created begins to answer some of those whys. For those of you that haven’t created an instructional design plan, these questions will generate an inventory of essential information to influence your content creation.

The main thing is to teach the library users or staff something you know: from how to use the online catalog or how to order an e-book to steps in the research process.

Multimedia content can be available 24 hours a day, 7 days a week, whereas your library isn't available 24/7.

Access to the content online can be more convenient to the User. If it's convenient for them to use a tutorial at 4 a.m., it's there! They can use it then, or whatever time is convenient to them.

Also, it’s self-directed learning: they can learn at their own pace. They can rewind a particular part, or come back to it later if they forget.

It can be interactive, with features for the listeners to check their knowledge or ask questions, and different media formats can help reach a lot of different learning styles.

You can reach larger groups, over a longer period of time than you might in a face to face setting.

There are a lot of advantages to creating online content to help teach different topics.

What other reasons do you have to create online content for your library? Which of these are most important for your community? After this video, you’ll have a reflection exercise in your workbook about your own “why.”

Design for Learning- Content Creation Week 1 Lesson - page 3
Slide 2
There are a lot of considerations for creating multimedia content to share online. You don't usually just sit down and record something unless you've done it a lot of times! It's really important to plan your tutorial, screencast, webinar, or other multimedia content.

There’s space in your workbook for you to explore many of these considerations, and then you’ll incorporate them back into your instructional design plan in week 3.

Slide 3
Who is your audience? Grads, undergrads, faculty, community, staff? Be clear about your audience. Make the content easy for them to understand. Consider the devices, browsers, etc. that they are likely to use.

Slide 4
What are your learning objectives? Have clearly defined outcomes in mind. Revisit the Foundation module if you need help with that.

Slide 5
Is the topic conveyed well in a video format? Many topics are well served by the combination of audio with visuals through video – but not all. If what you have to teach is best conveyed by text, then maybe a video is not the best choice – screens full of text can be more difficult to follow than just working from a text format in the first place. What other formats are possible? When does it support your content to make it more visual, or add sound? Make sure your content will be clear to the users in each format you choose.

What can you provide to supplement any single piece of content? There’s a variety of different formats you can use, and different learners may prefer one over the other: audio, video, text, infographic. Multiple formats can also give you a chance to plug your resources as each one points to, and then supplements, the others.

Slide 6
How long should the content be? What do you know about the attention span of your users, or what can you find out? Current trends lean toward breaking content into a series of shorter chunks, rather than a single long video or text, to keep users’ attention and make it easier for them to find specific content to review later.

Slide 7
Who will create the videos? You? or who can help you? Collaboration can make all the difference.
What expertise do they have? Perhaps a Subject Matter Experts, sometimes referred to as an SME, can work with someone who has more expertise about instructional design. You may have other colleagues with expertise in multimedia production or editing, or the aspects of web design that will help you to share it all online. One of you may be more comfortable appearing onscreen, or doing voice-overs.

Have they done this before? What will they need to learn, or practice? That will affect how long the process will take.

**Slide 8**
What is your budget? Some of the software is free and others you have to pay for, which we’ll talk about later.

Depending on what you want to do, it may take some time for a staff person to create the video. Think of your budget in terms of staff hours as well. Can your library spare a staff member to do it, including time to learn a program?
If not, who can you contract with to do the work? How much will their services cost? How long will you need them?

**Slide 9**
What tools can you use? You’ll need to consider both software and hardware to meet your objectives within your budget. What do you already have access to? Will you need to purchase anything additional? What software is available for free? We’ll cover this more in week 3.

**Slide 10**
What interaction can you include? Interactivity helps students learn better. Provide some interaction even if it’s before, or a survey at the end. In fact, you can do evaluation by putting up a simple survey at the end to see if the content was helpful.

Immediate feedback is important so if you include some quizzes, provide them feedback on how they’re doing right away.
You’ve already seen some examples in D4L of ways we’ve provided interaction: our challenge questions, reflections in your workbook, occasional surveys. Some different tools for assessment will come up again in the Course Management module.

In the community module you’ve already discussed different ways of facilitating a discussion, including the fact that discussion forums don't always work unless students are required to participate.
**Slide 11**
Where will you store the videos and other content? Videos will take up a lot of space on your internet server, so do you have a plan with your provider to account for that? What cloud-based services can you consider? What free services are available? This will also be covered more in week 3.

**Slide 12**
Finally, who will update the videos later? We recommend that you check your content every year or so, so that you can see if they need to be updated or even taken off the website entirely if they’ve become outdated.

This is another argument for developing your content as a series of smaller components – it’s easier to go back later and update relevant pieces as needed instead of overhauling a whole larger unit.

You’ll continue to answer these questions throughout this module, but now that you’ve worked through some of these considerations, you’re ready to move on to learning about the science of information overload and how to combat it.

**Reflection**

Why should your library create online content?

Go to the page in your workbook for this reflection. Check off any of these that apply to what you want to teach online to your library community:

- To teach the library user something
- Available 24/7
- Convenience
- Self-directed learning - Learners learn at their own pace
- Interactive
- Suits different learning styles
- Reaching large groups
- Encourage multiple learning styles

What else? List some other factors in your workbook.

Next, let’s take a quick “inventory” of considerations for the online content you want to create. If you have gone through some of the other modules, you probably have addressed a lot of this already in your instructional design plan, and this is a chance to think about possible revisions.
If you haven’t drafted an ID plan in another module, this is an exercise to start thinking carefully about the needs of a particular project for your library community.

Don’t worry if you don’t have all the answers yet! You will continue to determine what’s best for your project throughout this module. Just answer whatever you can in your workbook.

- Who is your target audience?
- What are the learning objectives?
- What format is best?
- How long will it be?
- Who will be responsible?
- What is your budget?
- What tools will be used?
- What interaction can you include?
- Where will the content be stored?
- Who will update the videos later?

Cognition

Video Transcript:
“D4L Content Creation Week 1: Cognition”
https://youtu.be/Gwyrg8IeKsw

Title Slide
It’s Helen, and we’re back with another video for week 1 of the D4L Content Creation module. This is the part where we talk about the science of information overload. When creating instructional content, there are a few important concepts to understand about cognition that should influence your choices in how to structure your content.

Slide 1
We’ve already talked a lot about learning styles throughout all the other modules so far, so the idea of multi-modal approaches isn’t new to you.

Slide 2
From the cognitive psychology side of things, this isn’t just about learner’s personal preferences or styles, but about how the brain functions. Researchers have found that different kinds of sensory experiences relate to different channels within the working memory: a verbal / text channel and a visual / spatial channel.
Too much into a single one of these channels can cause overload and impair learning, but sensory experiences balanced in both channels simultaneously can support each other and increase learning.

**Slide 3**
Related both to cognitive load and to each learner’s individual skills and experience, another important principle that multimedia content can help support is the idea of scaffolding. This practice refers to providing temporary support to help students reach a higher level in their work than they could without assistance. You don’t expect them to reach the top all in one step – you recognize that it will take a series of smaller step ups, each building upon the last. Some learners may “climb” more quickly than others depending on other factors, and some will need more support than others.

Even if you haven’t heard of this term used for instruction before, you’ve probably seen scaffolding practices in action. Here are some techniques you may want to incorporate into your own multimedia content:

- **Chunking** – you hear us talk about this a lot in this module in terms of deciding how long to make each piece of content so learners can easily digest each piece.
- **Demonstrating** – sharing examples of a completed activity so learners know where they’re headed, such as the work we’ve shared from our alumni.
- **Discussing** can really help learners to process their thoughts.
- **Pre-teaching vocabulary** – we’ve been trying to do that by sharing vocabulary lists as a part of each lesson.
- **Providing templates** – this can help learners to organize their process so they proceed forward with greater comfort – the D4L instructional design plan template is an example of this.
- **Pausing for questions** relates back to discussion.

**Slide 4**
It’s also important to encourage metacognition in your learners. This refers to activities where you’re aware of your own thought process - such activities have been shown to increase the chances of information making its way into your long term memory. Throughout D4L we have included reflection activities as a metacognitive strategy, along with a defined planning process with self-assessment along the way.

Some metacognitive strategies you may have used in the past, or may want to include in your content are brainstorming, predicting, reflecting, defining goals, planning, and self-assessment. These all require more active thinking, and relating content to personal ideas or goals. What others might be good for your learners?
Now that you know more about how your learners think, you’re ready to consider other principles for eLearning.

**Challenge Yourself!**

**Pick the Term!**

1. Match each instructional strategy to the related aspect of your learners' cognition.

   A. limit the amount of information covered in a single lesson
   B. provide a visualization along with an audio explanation
   C. demonstrate an assignment before your learners try it
   D. ask learners to predict how they think a particular activity will turn out

   1. multi-modal approach
   2. scaffolding
   3. metacognition
   4. cognitive load

**Six Principles of Effective eLearning**

**Video Transcript:**
“D4L Content Creation Week 1: 6 Principles of Effective eLearning”
[https://youtu.be/D3pTE8fQ38E](https://youtu.be/D3pTE8fQ38E)

**Title Slide**
Hello again! This is Helen with another video for week 1 of the Content Creation module. This time, we’ll focus on Ruth Clark’s 6 Principles of Effective eLearning.

**Slide 1**
One good source to turn to is the work of Ruth Clark. Based on research studies in cognitive psychology done by Richard Mayer with several colleagues at the University of California at Santa Barbara, Clark identified 6 principles that contribute greatly to effective eLearning.

Much of this is based on Cognitive Load Theory, related to what we covered in the last video.

Let’s look at what each of these areas refer to:
Slide 2
For each of these principles we’ve provided a sample of before and after applying the principle to improve the content. These examples are from actual content in other D4L modules.

Screens upon screens of text aren’t very engaging for learners. Adding visuals that support what’s in the text can help keep learners’ attention. The science behind this is that the printed text and the visual each work separately to be processed into long term memory, so that learning is increased.

Try to add visuals whenever you can.

Slide 3
The principle of Contiguity often relates to issues of scrolling on a device. If a learner has to scroll down to see an image, and they can no longer see the related text, that means that it’s harder on their working memory to remember what the text said and relate it to the graphic, or vice versa.

It’s much better if related text and graphics are placed near each other.

Slide 4
For many learners, listening to narration that explains a visual concept can be more effective than reading a text with the same information. Working memory has separate storage areas for visual and phonetic information. Examining an illustration and looking through explanatory text can overload the visual sensory experience, but by replacing the printed text with narrated text, this information can expand into phonetic storage.

If the combination of graphics and text seem like too much, then use audio or video formats that allow you to replace the text with narration.

Slide 5
However, if you add audio narration, but keep the printed text as well, this redundancy is setting your learners up for overload. Then learners are trying to process two different visual components along with the third audio component, which can be too much.

It is sometimes still appropriate to narrate the text on screen if there are no graphics. In that case the visual aspect of the text is not competing with an illustration for processing in working memory, but the audio is still processed separately and the two together can increase learning. This can also be helpful for learners who aren’t strong readers.

Just be careful about using redundant text and audio along with anything graphic.
Slide 6
Look at these cute cats! But wait, what is that slide supposed to be about? Maybe that GIF got your attention, but it’s actually distracting from the learning objective rather than supporting it. In this example the illustration really isn’t related, but in some cases they might seem to be related, but still really take away from the most important points of your instruction.

Keep in mind what your learners should be focused on and only include media that can help with that focus.

Slide 7
As you saw in the Community module, social engagement has a positive effect on learning. Some small changes can help with this - even just using “I” and “you” instead of more formal language. A face onscreen, either a still image or a video, can help – and this doesn’t always have to be a human being!

Cartoon animals have worked just as well in some studies. The science here is that a social presence onscreen makes the learning feel more like a conversation, in which your participation is more active, than simply observing in a way that is more passive.

Include a visual social presence if you can, perhaps a photo or video of yourself, or at least use conversational language to engage your learners.

Now that you’re grounded in best practices for creating eLearning content generally, you’re ready to move on to specific concerns around usability and accessibility.

Challenge Yourself!

2. Now that you have seen some examples of Ruth Clark’s 6 Principles of Effective eLearning, check if you can remember some of the specific principles. Match each principle to the correct description.

   A. the addition of graphics to words can improve learning
   1. personalization principle

   B. a conversational tone and the presence of social characters can increase learning
   2. multimedia principle

   C. when graphics are explained with audio, as opposed to written text, that improves learning
   3. modality principle
Usability and Accessibility

Video Transcript:
“D4L Content Creation Week 1: Usability and Accessibility”
https://youtu.be/P3Q0CGmBJlU

Title Slide

This is Helen with one more video for week 1 of the Content Creation module! This final video addresses concerns around usability and accessibility of your multimedia content.

Slide 1

In the Foundation and Diversity modules we've already talked a bit about the importance of both usability and accessibility. Some will show these two concepts in a Venn diagram, with an overlap in the middle. However, when we look at these from the perspective of Universal Design for Learning, we can think of accessibility as a part of usability: to be considered usable, content must be accessible to all users. Conversely, just because content is accessible doesn’t mean it is usable – usability means that use of a resource is effective and satisfying, going beyond mere access. Accessibility is focused on making sure that people with disabilities can perceive, understand, navigate, and interact with content. In fact, some institutions may be required to comply with standards like Section 508 of the Rehabilitation Act of 1973.

Rather than thinking of accessibility as something extra, adding alternative formats for fixing something later, you should consider it from the beginning of developing your content, and create content that is as inclusive as possible from the start.

Remember the personas you developed during the community module? Keep their needs in mind when you’re choosing tools and formats and structuring your content: the devices they use, the formats they need, their attention span, their schedules, their distractions. This may include a range of devices from screen readers or other adaptive devices to smartphones. Put yourself in their shoes and imagine multiple learners’ different workflows to go through all the content for your instruction.

Slide 2

This slide shows one great approach to accessibility, which you can easily remember as POUR, from the W3C Web Accessibility Initiative. (click)
I’ll just highlight a few of these, but this is also in your workbook, and there’s a link to this in the additional resources.

Depending on your objectives and what media you’re leaning toward, you may need to:

- Provide a transcript of multimedia content, including a simple text-only option of the script for screen readers
- Add captioning to multimedia content
- Provide multiple formats, such as audio narration, or downloadable content for offline viewing in addition to, or instead of, streaming content
- These are several important factors for operability
- Simplify your language to make it easier to understand

Pay attention to all these factors.

While these may be necessary for people with certain impairments, they can also be extremely helpful for people with other factors to consider. For example, captions may be necessary for someone with a hearing impairment, but can also be helpful to someone who is not a native English speaker, or a parent who is trying to learn from your instruction while their child is going to sleep.

Audio narration may help someone with a visual impairment, but can also help someone who needs to listen to instructional materials while driving on a long commute.

These factors will affect both your choice of tools for creation and services for access, to make sure it’s possible to provide the options you’ve determined you need.

There are websites listed in the Additional Resources where you can check to make sure your website is accessible - use these tools throughout your process to identify any problems, rather than waiting until the end.

Oh, and by the way, if you’re wondering what online content could cause a seizure, from this POUR list – visit the links in the Additional Resources for some examples of bad web design.

**Slide 3**

In your workbook we’ve provided a checklist for evaluating usability of online content as you go forward. Here we’ll share the different categories in the list, and then highlight some examples.
Some of these features relate to each individual piece of content, but some relate to the environment through which the content is shared. Right now we’ll focus only on the former, but remember to consider these in the course management and capstone modules as well.

**Slide 4**

First, color and contrast are very important to help your learners view your content easily. Text and images should always have high contrast, consistent styles and color palates, and links that are easy to identify as links.

**Slide 5**

For example, Can you read this text, with a light font against white?

How about the next row, with a light font against a background color?

Or the next row, with black text against a dark background color?

It’s better to stick with high contrast – dark text on light or vice versa, and black on white is the safest of all.

When you already know what you’re reading, you may not be as attentive to this – but keep your users with low vision in mind!

**Slide 6**

What about links?

A link that says Click Here won’t be clear to your users, especially if they’re using assistive devices – they need some context about where they’ll go if they click. Also, a link in an inconsistent color may not be obvious to users as a link, especially if there are places where colored text is used for emphasis instead of as a link.

It’s better to stick close to common conventions for formatting links – blue text with underlining is the most recognizable.

**Slide 7**

How you choose to present your text can also affect your learner’s experience. That fancy font you like might not be so easy to read. Also, you can keep your learners’ attention both with concise language, and use of bold or headings to chunk text on a page.
Slide 8

Your choices for layout and navigation can make it easier for your learners to follow along and find their way from one activity to another. Putting the important information up front, not crowding the page with too much information, making contact info easy to find, and simple navigation options all help learners get where you want them to go.

Slide 9

For example, it’s best to put your most important content “above the fold.”

This relates back to the Contiguity principle from a previous video, and to the idea of catching and focusing your learner’s attention, so I’m showing this slide again.

Engage your learners by showing some of the most important details near the top of the screen when they land there. Don’t count on them scrolling down – if nothing catches their attention, they might not.

This term originally referred to the top section of the front page of a newspaper – the part that shows on top when it’s folded. This has carried over into screen technology.

These are just a few examples of ways to address accessibility and usability. Be sure to visit the full checklist and the additional resources to explore this topic further.

Slide 10

Finally, your learners may get frustrated if the site loads slowly or requires plugins that they have to take extra time to download or configure. When you think about more complex features, ask yourself if it is necessary to deliver the content and base your decisions on that answer.

Now that you’ve considers best practices for creating content, you’re ready to start drafting content of your own.
Challenge Yourself!

3. Which of these design features does NOT help with making an online learning resource more usable and accessible?

   A. text and images have high contrast so they’re easy to view
   B. layout is packed with lots of information in a small area, without leaving much white space
   C. plugins (like Flash) are used only if objectives can’t be achieved without them
   D. bold / headings / etc. are used to help with focus

Summing up Week 1

Video Transcript:
“D4L Content Creation Week 1: Summing Up”
https://youtu.be/uBbzHvCk-DA

Hello! We covered a lot of ground this week on considerations and best practices for creating multimedia content. We went through an inventory that answers why you’re creating multimedia content in the first place. Then we talked about how learners learn, went over Ruth Clark’s 6 Principles of eLearning as a best practice for any content, and addressed specific concerns around usability and accessibility in multimedia content.

Now it’s time to apply what you’ve learned!

Assignment

Your assignment for week 1 is to evaluate one or two pieces of existing online instruction. We’ve provided a book module in Moodle for this week with several sources of online library instruction. You can choose from there or choose something you already know about, such as instruction from your own library or a something you already evaluated a different D4L module. There’s a page in your workbook to help guide your evaluation, with more instructions for this assignment. In week 2, you’ll take these considerations and draft your content with best practices in mind.

That’s it, see you in week 2!

End Credits 1

This program has been a collaboration between the South Central Regional Library Council, The Empire State Library Network, and the School of Information Studies at Syracuse University.
It was made possible thanks to a grant from the Institute of Museum and Library Services.

**Additional Resources**

For this week's instruction, you may find the following resources helpful.

**Accessibility, Usability, and Inclusion**


**Cognition**


Evaluating Online Screencasts and Tutorials

Videos
• All of this module’s videos are available on a playlist at YouTube: https://www.youtube.com/playlist?list=PLw6HBD7UyT3mThGNgQ2s1r5a1tUhujmun
Answer Key:

1. A-4, B-1, C-2, D-3  
   A-4 limit the amount of information covered in a single lesson - cognitive load  
   B-1 provide a visualization along with an audio explanation - multi-modal approach  
   C-2 demonstrate an assignment before your learners try it - scaffolding  
   D-3 ask learners to predict how they think a particular activity will turn out - metacognition

2. A-2, B-1, C-3  
   A-2 the addition of graphics to words can improve learning - multimedia principle  
   B-1 a conversational tone and the presence of social characters can increase learning - personalization principle  
   C-3 when graphics are explained with audio, as opposed to written text, that improves learning - modality principle

3. B - This is NOT a good practice for usability and accessibility. When an online resource is too crowded with information, without white space to separate different sections, it can be very hard to understand.